

Parlo

ELECTRONICS COMPANY, INC.

PARKO STANDARDS DRAWING NUMBER LIST

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PAID TO STATE AND DRAWING NUMBER LIST

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ELECTRONICS COMPANY, INC.

PARKO STANDARDS DRAWING NUMBER LIST

Drawing Number	REV	Date drwn.	Pre. Rel.	Rel. Date	Top Drawing	Description
90021	A	1-75	1-75	5-76	101290 101454	Base - Laser Sensor
90022	NC2	1-75	1-75	5-76	101290 101454	Filter - Laser Sensor
90023	NC1	11/75	11/75	12-76	100750	Terminal Assy - Ceramic Sphere P/N NC-1185-516-2025
90024		5-75	12-75		101358-3	Retractable Cord
90025-1	A1	8-75	8-75	7-76	101358-1	Filter
-2	A1	8-75	8-75	7-76	101358-1	
-3	A1	8-75	8-75	7-76	101403	
90026		4-77	4-77		101541 101379	Speaker Grill
	NC1		11/79			PURCHASE FROM...
90027		11-75	1-76		101376	Term Board Modif 8002-2
90028		1-76	2-76		101353	Terminal Assy - Current Sensor
90029						
90030		12-77	12-77		101115	gasket, Silicon rubber
90031-1/2		2-79	3/79		101585 101588	Heat Sink Modif.
90032						BOBIN KOR 60041

* M's was assigned for 680-1.00 Heat Sink Modif for 101421 (waived)

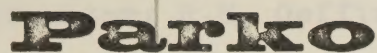
PARKO STANDARDS DRAWING NUMBER LIST

Drawing Number	Date drwn.	Pre. Rel.	Rev. Date	Top Drawing	Description
90010-1A	5-72	5/72	1-76	101015	POT CORE MODIF
-2	"	"		101015/101355	"
-3	"	"		101018	"
-4	"	"		101018	"
-5	1-76	1-76		101355	"
90011-1	7-73	7-73	11-73	101015	TERM BLOCK ASSY
-2	7-73	7/73	11-73	101018	"
90012-1	10-72	10-72		101076	RETAINER
-2	10-72	10-72		"	SWITCH MODIF
90013	10-72	2/73		101079	STUD 1-14NS-24THD
90014A	1-73	1/73	12-73	101118	INSERT 6-32 thread
90015	7/73	7/73		101015 101018	Insert 8-32 thread N/A 90011-1-2
90016	1/74	12/74		101218	Base
90017	2/74	12/74		101218/101288	Filter
90018-2	2/74	12/74	5-76	101218/101288	lens
90019	2/74	12/74		100218/101228	Stud 4-40
90020	6-74	12/74		101288	Base - Dash Sensor
Over					

PARKO STANDARDS DRAWING NUMBER LIST

Drawing Number	Date	Rev.	Top Drawing	Description
90010	11-2-52	1-1	101012	POT CORE MODIF
5	"	"	101012 101327	"
3	"	"	101018	"
4	"	"	101018	"
7	1-26-52	1-1	101322	
90011	7-22-52	1-1	101012	TERN BLOCK ASSY
5	7-22-52	1-1	101018	"
90012	10-25-52	1-1	101012	RETAINER
5	10-25-52	1-1	"	SWITCH MODIF
90013	10-25-52	1-1	101012	STUD 1-1/16-5/16-10-10
90014	1-23-53	1-1	101118	WASHER 5/16-11/16-10-10
90015	11-23-52	1-1	101018	WASHER 5/16-11/16-10-10
90016	11-23-52	1-1	101018	WASHER 5/16-11/16-10-10
90017	11-23-52	1-1	101018	WASHER 5/16-11/16-10-10
90018	11-23-52	1-1	101018	WASHER 5/16-11/16-10-10
90019	11-23-52	1-1	101018	WASHER 5/16-11/16-10-10
90020	1-24-53	1-1	101018	WASHER 5/16-11/16-10-10

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ELECTRONICS COMPANY, INC.

PARKO STANDARDS DRAWING NUMBER LIST

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PARKO STANDARDS DRAWING NUMBER LIST

Drawing Number	Date	Rev.	Top Drawing	Description
10001	2-68	1/1		INSERT - 2.54 THD
10002	1-67	1/1	100200	REPAIR, WIRE LATCHING
10003	10-67	1/1		BRACKET, 1.75 X .51
10004	4-68	2/1	100200	HEAT SINK
10005-1	11-70	1/1		# 25 AWG WIRE PIN (1.00)
5-	"	"		# 25 AWG " (1.00)
3-	"	"		# 24 AWG " (1.00)
1-	11-72	"		# 18 AWG " (1.00)
10006-1	11-71	1/1	100200	DISCONNECT
5-01	"	"		
10007	3-72	1/1	101015	COPPER STRAP
10008	3-72	1/1	101018	COPPER STRAP
10009-1	10-72	1/1	101015	WASHER, BELSON
5-	"	"	101018	"

ELECTRONICS TECHNICIAN

TRADE TECHNICAL INFORMATION SHEET

Algebra--Equations

An equation is a mathematical statement that two numbers or quantities are equal.

A formula is an equation of a rule, law or some scientific relationship expressed by means of letters, symbols, and constant terms. The importance of handling formulas to solve for the unknown terms is of the utmost importance. To rearrange or substitute terms of a formula also will help solve and understand many conditions that exist in electronic circuits.

Axioms:

1. Equal numbers added to equal numbers the sums are equal;
or: the same number may be added to both sides of an equation without destroying its equality.

$$10 = 10 , 10 + 2 = 10 + 2 , 12 = 12$$

2. Equal numbers subtracted from equal numbers the remainders are equal;
or: the same number may be subtracted from both sides of an equation without destroying its equality.

$$10 = 10 , 10 - 2 = 10 - 2 , 8 = 8$$

3. Equal numbers multiplied by equal numbers, their products are equal;
or: both sides of an equation may be multiplied by the same number without destroying its equality.

$$10 = 10 , 10 \times 2 = 10 \times 2 , 20 = 20$$

4. Equal numbers divided by equal numbers their quotients are equal;
or: both sides of an equation may be divided by the same number without destroying its equality.

$$10=10, \frac{10}{2} = \frac{10}{2}, 5=5$$

5. Numbers that are equal to the same number are equal to each other;
or: an equal quantity may be substituted for a term without destroying the equality of an equation.

$$\begin{aligned} X &= X \text{ and } X = abc \\ \text{also } X &= yz \\ \text{then } abc &= yz \end{aligned}$$

6. Powers of equal numbers are equal;
or: both sides of an equation may be raised to the same power without destroying its equality.

$$10=10, 10^2=10^2, 100=100$$

7. The roots of equal numbers are equal;
or: like roots may be extracted from both sides of an equation without destroying its equality.

$$9=9, \sqrt{9} = \sqrt{9}, 3=3$$

8. The whole is equal to the sum of all its parts.

$$200 = x + 4x$$

Rule: A term may be transposed from one side of an equation by changing its sign.

$$10+2=8+4, 10+2-4=8, 8=8$$

$$x+y=a+d, x+y-a=d$$

Rule: If the same term occurs on both sides of an equation with the same sign it may be cancelled.

$$\begin{aligned} 10+2 &= 10+2 \\ 10 &= 10 \end{aligned}$$

$$\begin{aligned} x+y &= x+d \\ y &= d \end{aligned}$$

Rule: The signs of all terms of an equation may be changed without destroying its equality.

$$\begin{aligned} 10-2 &= 5+3 \\ -10+2 &= -5-3 \\ -8 &= -8 \end{aligned}$$

$$\begin{aligned} x+y &= x+2d \\ -x-y &= -x-2d \end{aligned}$$

Rule: Factors in the numerator or denominator of a single term may be transferred to the other side of an equation becoming a numerator if a denominator or vice versa.

$$\frac{10}{2} = \frac{40}{8}$$

$$\frac{x}{a} = \frac{c}{b}$$

$$\frac{10 \cdot 8}{2} = 40$$

$$\frac{x \cdot b}{a} = c$$

$$40 = 40$$

$$\frac{5 \cdot 2}{20} = \frac{5}{10}$$

$$\frac{5}{20} = \frac{5}{2 \cdot 10}$$

$$\frac{5}{20} = \frac{5}{20}$$

$$\frac{x \cdot z}{a} = \frac{y}{a}$$

$$\frac{x}{a} = \frac{y}{az}$$

ELECTRONICS TECHNICIAN

ASSIGNMENT SHEET

Kirchhoff's Laws

Materials: Information Sheet on Kirchhoff's Laws and Simultaneous Equations and Cooke's Mathematics.

Introduction: Kirchhoff's Laws are an extension of Ohm's Law and may be stated as follows:

1. The algebraic sum of the currents at any junction of conductors is zero.
2. The algebraic sum of the electromotive forces and voltage drops around any closed circuit is zero.

Applying these laws enables solving circuits that would be difficult or impossible with Ohm's Law alone.

Assignment: Study Information Sheet and pages 184 to 197, chapter 19 in Cooke's Math.

Test: Turn in work for the following problems in Cooke's Math:

Problems 19-1, odd

Problems 19-2, any 4

Problems 19-3, 1 to 5

KIRCHHOFF'S LAWS

1.9-1

$$12 - I \cdot 5 - I7 - I2 - I3.5 = 0$$

$$12 - I12 = 0 \quad \frac{I12}{12} = \frac{-12}{12} \quad \underline{I = 1 \text{ A}}$$

$$② \quad 120 - I50 - I25 - I10 - I20 = 0$$

$$120 - I87.9 = 0 \quad \frac{I87.9}{87.9} = \frac{-120}{87.9} \quad \underline{I = 1.35 \text{ A}}$$

$$3 \quad .5(.1 - 2.1 + 2.3 + 1.5) = .5 + 1.05 + 1.15 + .75 = 3 \text{ E}$$

$$.1 \times .5 = .05 \quad 3 - .05 = \underline{2.95 \text{ E}}$$

$$④ \quad 12 - 1.39(.05 + 2.57 + 3.6 + 1 + X) = 0$$

$$12 - 1.39(7.20 + X) = 0$$

$$12 - 10 - 1.39X = 0$$

$$1.39X = -12 + 10$$

$$\frac{1.39X}{1.39} = \frac{-2}{1.39} \quad X = \underline{-1.44}$$

$$(5) \quad E - 25 \times .4 - 110 = 0$$

$$25 \times .4 = 10 \text{ V}$$

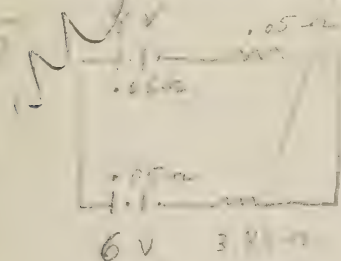
$$E - 10 - 110 = 0$$

$$110 + 10 = 120$$

$$E - 120 = 0 \quad \underline{E = 120}$$

$$6 \quad E_m = 240 + 56.8 \times 176$$

$$E_m = 240 - 10 = \underline{E = 230}$$

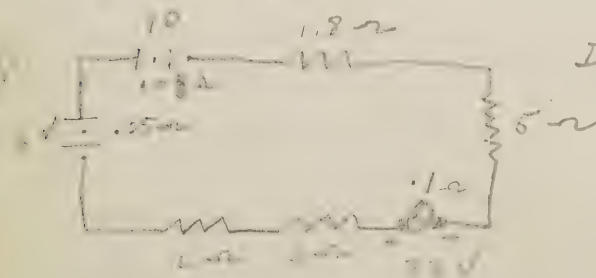


$I = 2$

$$E - I(.05 + 3.84 + .05 + 1.1) - 9 = 0$$

$$E - I4 - 9 = 0$$

$$I4 - 2 = 0 \quad \frac{-I4}{4} = \frac{2}{4} \quad \underline{I = .5}$$

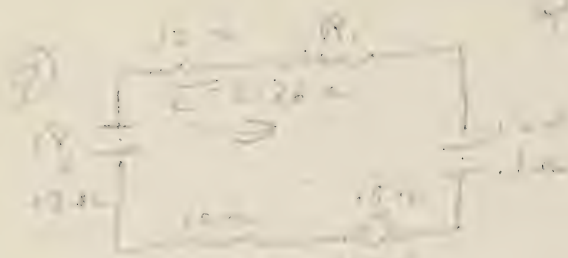


$$I = 2 \quad 6 - I(.05 + 2 + 4 + .1) + 32 - I(5 + 1.8 + .08) - 10 = 0$$

$$6 - I13.03 + 32 - 10 = 0$$

$$28 - I13.03 = 0$$

$$\frac{28}{13.03} = \frac{-28}{13.03} \quad \underline{I = 2.15 \text{ A}}$$

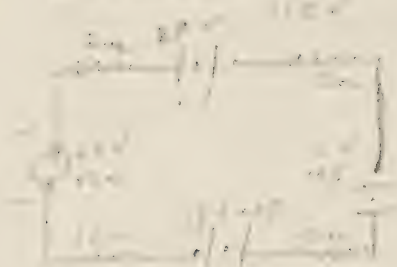


$$11.0 = 2.76(1.5 + 10 + 12 + 1.2 + 15) - 15 \cdot 1.0$$

$$11.0 - 4.14 = 2.76R + 15 - 15.0 = 0$$

$$17.1 - 2.76R = 0$$

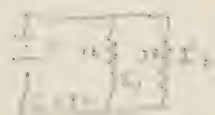
$$\frac{17.1}{2.76} = \frac{17.1}{2.76} = 6.2 \text{ A}$$



$$I = ?$$

$$32 - 15 - 1 - 20 = I(12 + 10 + 15 + 15 + 15 + 15 + 15)$$

$$-19 = 90I \Rightarrow I = -0.21 \text{ A}$$



$$19 = 2$$

$$I = 8$$

$$9 - 5 - I_1 = 0$$

$$9 - 5 = I_1$$

$$E - I_1 \cdot 12 = 0$$

$$E - 12 \cdot 4 = 0$$

$$\frac{I_1 \cdot 12}{12} = \frac{E}{12}$$

$$I_1 = \frac{E}{12}$$

$$\frac{I_1 \cdot 12}{12} = \frac{E}{12}$$

$$I_1 = \frac{E}{12}$$

$$8 - \frac{E}{12} - \frac{E}{20} = 0$$

$$8 - \frac{5E}{60} - \frac{3E}{60} = 8 - \frac{8E}{60} \Rightarrow 60 \cdot 8 - 8E = 0$$

$$\frac{480}{8} = \frac{8E}{8} \Rightarrow E = 60 \text{ V}$$



$$9 = I_1 + I_2 + I_3$$

$$9 - I_1 - I_2 - I_3 = 0$$

$$E - 3I_1 = 0 \Rightarrow 3I_1 = E \Rightarrow I_1 = \frac{E}{3}$$

$$E - 6I_2 = 0 \Rightarrow 6I_2 = E \Rightarrow I_2 = \frac{E}{6}$$

$$E - 4I_3 = 0 \Rightarrow 4I_3 = E \Rightarrow I_3 = \frac{E}{4}$$

$$9 - \frac{E}{3} - \frac{E}{6} - \frac{E}{4} = 0 \Rightarrow 9 - \frac{4E}{12} - \frac{2E}{12} - \frac{3E}{12} = 0 \Rightarrow 9 - \frac{9E}{12} = 0$$

$$108 = 9E \Rightarrow \frac{108}{9} = \frac{9E}{9} \Rightarrow E = 12$$

$$I_2 = 6 \text{ A} \quad I_3 = 3 \text{ A}$$

13)



$$E - I_2 \cdot 9 = 0 \text{ or } E - 9 \times 6 = 0 \Rightarrow E = 54$$

$$E - I_3 \cdot 12 = 0 \Rightarrow 54 - I_3 \cdot 12 = 0 \Rightarrow \frac{54}{12} = \frac{I_3 \cdot 12}{12} \Rightarrow I_3 = 4.5 \text{ A}$$



5.43 Ω

$$8 - I_1 \cdot 1 - 5.43 I_1 = 0$$

$$\frac{I_1 \cdot 1}{1} = \frac{8 - 5.43 I_1}{1} \Rightarrow I_1 = 80 - 54.3 I_1$$

$$8 - I_2 \cdot 1 - 5.43 I_2 = 0$$

$$I_2 = 80 - 54.3 I_2$$

$$\frac{I_2 \cdot 1}{1} = \frac{8 - 5.43 I_2}{1} \Rightarrow$$

$$I - (80 - 54.3 I) - (80 - 54.3 I) = 0$$

$$I - 80 + 54.3 I - 80 + 54.3 I = 0$$

$$I - 160 + 108.6 I = 0$$

$$160 + 109.6 I = 0$$

$$\frac{109.6 I}{109.6 I} = \frac{-160}{109.6 I} = 1.46 \Omega$$

5. same circuit
1 Ω

$$8 - I_1 \cdot 1 - I_1 = 0$$

$$\frac{I_1 \cdot 1}{1} = \frac{8 - I_1}{1} \Rightarrow I_1 = 80 - 10 I_1$$

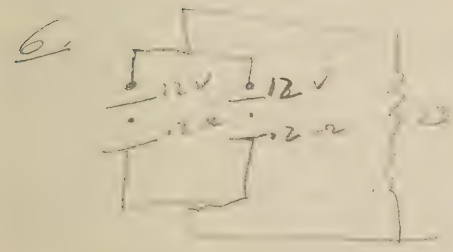
$$8 - I_2 \cdot 1 - I_2 = 0$$

$$I_2 \cdot 1 = \frac{8 - I_2}{1} \Rightarrow I_2 = 80 - 10 I_2$$

$$I - (80 - 10 I) - (80 - 10 I) = 0 \Rightarrow I - 80 + 10 I - 80 + 10 I = 0$$

$$I - 160 + 20 I = 0$$

$$160 - 21 I = 0, \frac{21 I}{21} = \frac{160}{21} = 7.62$$



$$I = I_1 - I_2 = 0$$

$$12 - I_1 \cdot 12 - 13 I_1 = 0 \Rightarrow I_1 \cdot 2 = 12 - 13 I_1$$

$$12 - I_2 \cdot 12 - 13 I_2 = 0 \Rightarrow I_2 \cdot 2 = 12 - 13 I_2$$

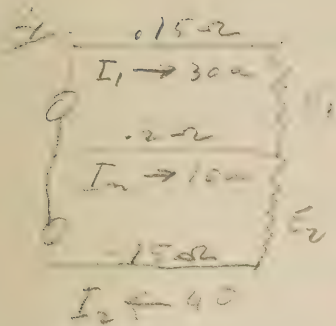
$$\frac{I_1 \cdot 2}{2} = \frac{12 - 13 I_1}{2} \Rightarrow I_1 = 60 - 65 I_1$$

$$I_2 \cdot 2 = \frac{12 - 13 I_2}{2} \Rightarrow I_2 = 60 - 65 I_2$$

$$I - (60 - 65 I) - (60 - 65 I) = 0 \Rightarrow I - 60 - 65 I - 60 - 65 I = 0$$

$$I - 120 - 130 I = 0 \Rightarrow \frac{131 I}{131} = \frac{120}{131} = 0.91 \Omega$$

14-3



$$125 - (30 \times .15) - E_1 + (10 \times .2) = 0$$

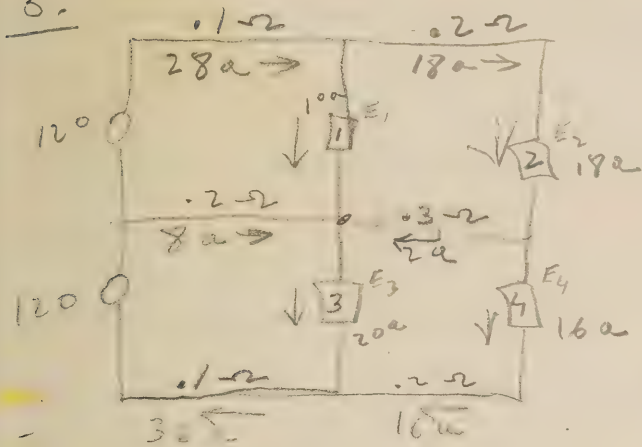
$$122.5 - E_1 = 0 \quad \underline{E_1 = 122.5}$$

$$125 - (10 \times .2) - E_2 - (40 \times .15) = 0$$

$$117 - E_2 = 0 \quad \underline{E_2 = 117 \text{ V}}$$

$$P = E \times I = 117 \times 40 = 4680 \text{ WATTS}$$

5.



E_1 LOOP

$$120 - (28 \times .1) - E_1 + (8 \times .2) = 0$$

$$118.8 - E_1 = 0 \quad \underline{E_1 = 118.8}$$

E_2 LOOP

$$E_1 - (18 \times .2) - E_2 - (2 \times .3) = 0$$

$$118.8 - 4.2 - E_2 = 0 \quad \underline{E_2 = 114.6}$$

E_3 LOOP

$$120 - (8 \times .2) - E_3 - (36 \times .1) = 0$$

$$114.8 - E_3 = 0 \quad \underline{E_3 = 114.8}$$

E_4 LOOP

$$E_3 + (2 \times .3) - E_4 - (16 \times .2) = 0$$

$$114.8 - 2.6 - E_4 = 0 \quad 112.2 - E_4 = 0 \quad \underline{E_4 = 112.2}$$



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Drawing Number	Date drwn.	Pre. Rel.	Rel. Date	Top Drawing	Description
80159				101680	AE- OVERLAP
80160				101683	AE- SHORTCUT
					REPAIR
80161				101699	Appl. - Control. Box
80162				101702	Appl. - Tape Holder
80163				101705	Appl. - Display Holder
80164				101708	Appl. - Display Control Holder
80165				101714	MAP-1000
80166-1				101696	DECA- 1000 V. 1000
80166-2					DECE
80167				101720	NCVD- 7/AC
80168-1-2A				101731	SEMI- 1000
80169				101740	HEAVY- 1000
80170A				101715	NCVD- 1000



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Drawing Number	REV	Date drwn.	Rel.	Revised Date	Top Drawing	Description
80148		4-78	424		101623	Solid Die Spreader
80149-1		6-78	211		101614	Power Supply
-2					11	U.S. Standard
80150					101611	WATER-PROOFING
80151		11/79			101286	PHOTO EMB. - FDI
80152					101662	POWER SUPPLY
80153-1					101649	WATERPROOF
-2						VCO
80154					101643	POWER HV Fan Spd.
80155-1					101665	WATER - MONITOR
-2						
80156					101671	AE - D.V. POWER
80157					101674	AE - D.V. - POWER
80158					101677	AE - WATER SUPPLY

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Drawing Number	Rev.	Date drwn.	Rev. Rel.	Rev. Date	Top Drawing	Description
80138		4-78	5-78		101535	Sensor Board
80139	101	9-77	9-77	11-77	101523	Stepping Motor
	102			11-79		
80140-1					PC1 101562	SEA WATCH
-2					PC2	
80141					101565	Sea Watch - T-1000
80142-1		1-78	2-78		101280	Sensor Board
80142-2		2-78	2-78		101280	"
80143-1A		2/16/78			101281	SEA WATCH - L-1000
-2A		3/14/79			101281	SEA WATCH
80144-1 A		6-8-78	6-8-78	6-8-78	101604-1	Sea Watch Board
-2 A		6-1-78	6-1-78	6-1-78	101604-2	Sea Watch
80145 A		6-1-78	6-1-78	6-1-78	101605	Sea Watch
80146					101617	Sea Watch - T-1000
80147-1		5-78	5-78		101576	VOLTAGE SENSOR - HAC
-2		5-78	5-78			

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Drawing Number		Date drwn.	Rel. Rel.	Rel. Date	Top Drawing	Description
80128					101436	SOLID STATE AMPLIFIER
80129-1		9-76	9-76		100859	Sensing Relay Unit
					101037	1. Amplifier
80130	NC	8-76	9-76	9-76	101486	DC TO DC INVERTER TFLAME D/C
80131					101498	Selectable
80132					101495	Sensing (Sint 10149)
80133-1		11-76	11-76		101500	Motor Sensing Unit Set
-2		"	"			
80134-1	LC	4-77	4-77	7-78	101507 101526 101510 101527	Relay Unit, 6000/1000
-2	A	4-77	4-77	7-78	101547 101550	
80135-1		3-77	3-77		101520	Electric Motor Control II
-2		3-77	3-77		"	Tape from 80135-1
80136-1		6-77	6-77		101553	FUEL MASTER
-2						
80137A		11-3	11-3		101538	Current Sensor (11-3)



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Drawing Number	REV	Date drwn.	Pre. Rel.	Rel. Date	Top Drawing	Description
80116		7-77	7-77		1014130	Solid State Seq 4565-704A
80117					1014133	Solid State Seq 4560-709A
80118					1014139	Solid State Seq 4560-5
80119					101442	Solid State Seq 4560-5
80120-1					101445	MODULE FOR
80120-2						CLS MODULE
80121					101454	Base to it
80122					101457	Target Controller
80123					101460	Gun Controller
80124					101451	LASER POWER SUPPLY
80125					100984	MEMO COUNT ^{Digital} PRE
80126		9-8-76			101427	3M H.V. SUPPLY
80127					101483	Solid State Seq 4561

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ELECTRONICS COMPANY, INC.

PARKO STANDARDS DRAWING NUMBER LIST

Drawing Number	Date drwn.	Pre. Rel.	Rel. Date	Top Drawing	Description
80106-1	1-75	1-75		101364	7114 2nd floor C.L.S.
80107	12-75	1-76		101370	7114 2nd floor C.L.S.
80108-1				101406	7114 2nd floor C.L.S.
80109				101412	7114 2nd floor C.L.S.
80110	1-76	1-76		101355	Current Section
80111-1				101403-1	7114 2nd floor C.L.S.
-2					
-3					
80112				101403-2	7114 2nd floor C.L.S.
80113-1				101409	7114 2nd floor C.L.S.
-2					
80114-1				101418	7114 2nd floor C.L.S.
-2					
-3					
80115	2-76	3-76		101424	7114 2nd floor C.L.S.

Table of Contents

Page	Chapter	Section	Sub-section	Page
1	1	1	1	1
2	2	2	2	2
3	3	3	3	3
4	4	4	4	4
5	5	5	5	5
6	6	6	6	6
7	7	7	7	7
8	8	8	8	8
9	9	9	9	9
10	10	10	10	10
11	11	11	11	11
12	12	12	12	12
13	13	13	13	13
14	14	14	14	14
15	15	15	15	15
16	16	16	16	16
17	17	17	17	17
18	18	18	18	18
19	19	19	19	19
20	20	20	20	20
21	21	21	21	21
22	22	22	22	22
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24	24	24	24	24
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26	26	26	26	26
27	27	27	27	27
28	28	28	28	28
29	29	29	29	29
30	30	30	30	30
31	31	31	31	31
32	32	32	32	32
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44	44	44	44	44
45	45	45	45	45
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Parko

ELECTRONICS COMPANY, INC.

PARKO STANDARDS DRAWING NUMBER LIST

Drawing Number	REV	Date drwn.	Pre. Rel.	Rev. Date	Top Drawing	Description
80097					101338	7.5V 100mA Reg. PS
80098		4-75	5-75		101332	7.5V 100mA
80099-1					101340	NEC Power Supply
-2					"	
-3					"	
-4					"	
-5					"	
-6					"	
80100-1					101329	AUTU DIE
80100-2						DIGITIZER
80101-1					101358-1	Hand Tracer - 1
80101-2					101358-2	Hand Tracer - 2
80102	MC	7-75	7-75	7-75	101361	CONST. POWER SUPPLY
80103					101367	3-Phase Separator
80104					101352	10-Phase Separator
80105					101335	10-Phase Separator

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ELECTRONICS COMPANY, INC.

PARKO STANDARDS DRAWING NUMBER LIST

Drawing Number	Date drwn.	Rev. Rel.	Rev. Date	Top Drawing	Description
80086	6-74	1-74		101262	TARGET DRIVER SEQUENCE
80087				101283	Test Run
80088				101253	THANKS - 21 APR 74
80089-1	7/74	8/74		101271-1	REMOTE ACCELERATOR
-2	7/74	8/74		101271-2	REAR OUT
80090-1				101265	ACCELERATOR
-2					
80091	8-74	8-74		101274	SOLID STATE Sequencer (Bench)
80092-1 & -2	4-74			101302	Model 711 - 2nd Module
80093 A	8-74	10-74	1-75	101250	SPARK GENERATOR
80094				101242	ROCKER SWITCH
80095				101277	Time Delay Relay
80096	1-75	1-75		101290	NEW - 21 APR 75

UNITED STATES DEPARTMENT OF AGRICULTURE

Name of Farm or Place		County		State		Date
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ELECTRONICS COMPANY, INC.

PARKO STANDARDS DRAWING NUMBER LIST

Drawing Number	^{LAST} Rev	Date drwn.	Rev. Rel.	Rev. Date	Top Drawing	Description
80076		8-73	9-73		101157	Power Relay
80077-1		10/73	11/73		101209	Accessories
-2		"	11/73		"	"
80078 A				4-74	101212	Target Unit for 80041 using 80077 accessories
80079		12-73	1-74		100943A	Power Transformer
80080		11-77	12-77		101229	VIRKING Target Board
80081		1/74	1/74		101215	Power Relay Supply
80082		3/74	3/74		101220	Target Decoder
80083		3/74	3/74		101244	AIR EAST 2012012
80084		1/74	1/74		101247	Power Components
80085					100974	Component w/assembly

C Size

C Size

Table 1: Summary of Data

Category	Sub-category	Value 1	Value 2	Value 3	Value 4
Category 1	Sub-category 1.1	10	20	30	40
Category 1	Sub-category 1.2	15	25	35	45
Category 1	Sub-category 1.3	20	30	40	50
Category 1	Sub-category 1.4	25	35	45	55
Category 1	Sub-category 1.5	30	40	50	60
Category 1	Sub-category 1.6	35	45	55	65
Category 1	Sub-category 1.7	40	50	60	70
Category 1	Sub-category 1.8	45	55	65	75
Category 1	Sub-category 1.9	50	60	70	80
Category 1	Sub-category 1.10	55	65	75	85
Category 2	Sub-category 2.1	60	70	80	90
Category 2	Sub-category 2.2	65	75	85	95
Category 2	Sub-category 2.3	70	80	90	100
Category 2	Sub-category 2.4	75	85	95	105
Category 2	Sub-category 2.5	80	90	100	110
Category 2	Sub-category 2.6	85	95	105	115
Category 2	Sub-category 2.7	90	100	110	120
Category 2	Sub-category 2.8	95	105	115	125
Category 2	Sub-category 2.9	100	110	120	130
Category 2	Sub-category 2.10	105	115	125	135
Category 3	Sub-category 3.1	110	120	130	140
Category 3	Sub-category 3.2	115	125	135	145
Category 3	Sub-category 3.3	120	130	140	150
Category 3	Sub-category 3.4	125	135	145	155
Category 3	Sub-category 3.5	130	140	150	160
Category 3	Sub-category 3.6	135	145	155	165
Category 3	Sub-category 3.7	140	150	160	170
Category 3	Sub-category 3.8	145	155	165	175
Category 3	Sub-category 3.9	150	160	170	180
Category 3	Sub-category 3.10	155	165	175	185

	File Date	At	GO	
80002	6-73	7-73	101049	Time Delay Relay
80003			101097 101112	
80064-1 -2	1/74 1/74		101143 "	Grade Counter Construction Supply
80065-1 -2	7-73 "	7-73 "	100366	
80066 B	6-73	7-73	1/74 101151	
80067	4/74	7-73	101145 101169	Time-Delay Relay
80068-1 -2 -3			101076	Time Delay Relay
80069	7-73	7-73	101166	Time Delay Relay
80070			101191	Resettable Delay Relay
80071	9/73	10/73	101172	Alert
80072			101187	Relay Relay
80073	10/71	12-73	101175	Light Time Delay
80074	8-73	9-73	101121	Time Transmitter
80075	10-74	10-74	101117	Transient Suppressor

Over 80000 P-C Boards

	DWG NO	REV	REL	TOP	DESCRIPTION
	80047	A	10/72	11/72	100845 BDI w/ 2.1
	80048	-1			100944-1 Sensing Relay 719075
	80049	-2			100944-2 "
	80050	-2			100944-3 "
C	80051	-2	6/72	8/72	100623 Dual Voltage Relay Sensing Protection
	80052				100996 24VDC Time Delay (Eaton Link)
C	80053	8/72	9/72		101043 Temp. Sensor
	80054	10/73	11/73		101015 101014 Current Sensor 275A & 350A
	80055A	12/72	2-73	4	101046 12VDC to 24VDC Converter
	80056A	4-73	4-73		101082 101088 BDI Light
	80057A	4-73	4-73		101070 101085 BDI Light with interrupt
	80058-1	1/73	1/73		101118 DC-DC Converter
	-2	"	"	"	
	80059-1	5/73	7/73		101128 Power Supply NELC
	-2	5/73	5/73		
	80060-1				101064 Sensing Relay Ov/un Voltage
	-2				
	80061-1				100944-4 Sensing Relay 719075
	-2				

80000 P-C BOARDS

DWG NO	DRW REL	TOP	DESCRIPTION
80031-1	1/70	100854	Sensing Relay On-line Voltage
80031-2	"	101037	(Revised 80018-14-2)
80032		100723 100960	- VOLT & FREQ SENSING RELAY to monitor 10652939
80033			
80034			
80035	^{TOP} 10-5	5/76 <u>100935</u>	- D.J.P.
80036	1/71	1/71 100922	Time Delay Relay
80037		100972-1/2	Time Delay Relay
80038		10090611	Frequency Monitor
80039	A2 6/70	4/72 <u>100911</u>	Relay Control
80040		100914	Recycle Timer
80041			
80042	8/71	8/71 100918	
80043	6/71	100913	
80044		100979	V/N G-6 Z1 Control Module
80045	1/79	1/79 100750	Current Sensing Relay
80046	1/71	1/71 100731	B.D. Monitor Heater

80000 P/C Boards

Qty	No	TOP	Description
A	80017-1A 1A 1707-73 1st at -2A	100749	EC to DC Converter
16A	80018-1 -3	100709 100849	Sensing Relay (719090-1D) Do not → replaced by 80031 (719092-1) many days
A	80019-1 1/2 -2	100846	Sensing Relay (719093-1)
R	80020 1/2	100746	Sensing Relay (719091-1)
A	80021-1 1/2 -2	100789	Current Breaker
	10012-1 1/2 -2 A	100838	220 KHz VCO
	80023 1/2	100742 101178	Sensing Relay (719092-33) " " (714702-1)
	80024 1/2	100659-1 2	Dual Input T.D. Delay 455-0537C
	80025 1/2	100776	Port & Freq. Delay (24-2512-1) manual
	80026A 1/2 1/2	100877	Current Sensing Regulator 6K1/72.1K
	80027	100627B	Time Delay 50-0455-026-145.0
	80028 1/26 1/2	100793 500 series	additional V for power "spikes"
	80029 3/2 1/2 1/2 1/2	100840 100840 100885	Time Delay - 7/100000/100000 Current Limiting Ampl.

Summary				
A	80001	10/10	100574	DC-700 Time Delay Unit
A	80002 M1	10/10 8/16	100567	
She	80003		100544	(Revised July 2000)
R	80004	10/11	100500	
R	80005	9/2	100465 100508	
R	80006	9/10 9/11	100435	
R	80007	9/10 9/11	100504	
A	80008	6/10	100692	Reg. A
A	80009 M1	9/10 6/10	100193 CT (100126) 100167 100128	
R	80010	10/10	100675R 100674R 100683R	Voltage Monitor VTF 100 Time Delay Unit Freq Monitor VTF 300
R	80011	10/10	100101	Electronic Timer
R	80012	9/10	100700	PS7225 3000 25F 3
R	80013		20734	(Kawabuchi)
R	80014	9/10	100367	Time Delay Unit
R	80015	9/10 9/10	100793	Asst'l ckt for Huelco Relay
A	80016-1	9/10 -2B 9/10 -3 9/10	100754	DC-AC Inverter

November 19, 1992

General Dynamics Electronics Division
P.O. Box 80562
San Diego, California 92138

REFERENCE: GENERAL DYNAMICS SPECIFICATION 6010663
PARKO ELECTRONICS ENGINEERING SPECIFICATION 1905

Dear Mr. Jay Strandberg:

In reference to the conversation between Mr. Jay Strandberg, Mr. Dean Attenberger and Frank Parker on November 4, 1992, Parko Electronics is hereby submitting the revised Engineering Specification ES 1905A for your review and approval.

Please sign the front page and return it to us.

Sincerely,

Frank F. Parker
Parko Electronics

Enclosure: ES 1905A
FFP/law

Mr Bill Hoff

310) 647-3578

719728-001 (C) 101535

Returns for Repair

8/24/06 S.O. 5840 Broken Thread on Nut
~~of motor~~ Raytheon's fault -
Replaced head, led. & can

S.O. 5661 2 capacitors changed to
meet (C) change requirements
(random failure)

S.O. 5880 Complaint was intermittent
signal - Gus ran unit thru
Hot & Cold, found no problem

J - ~~HH~~ HH
C - III

\$16712

HAS CARTA PARA BARCO CON LOS
NOMBRES PARA FIRMAR -
ALGERIA

ALGERIA

48 CANS

22 COVERS w/HOOK AND STOPS.

100 LABELS

27 HEADERS

31 (R20) 3329H-1-102 1A BOURNISTOT (1.20)

73 (R14) 3329H-1-502 5A 11 POT (81.20)

1 60073 TRANSFORMER

34 ~~85~~ 80138 C P.C. BOARDS

ORIGINAL HUGHES AIRCRAFT SPECIFICATION
CONTROL DRAWING # 719728 C
FEB-23-1977

PART TOP DRAWING - 101535 A - PAGED - ~~123~~ 23-77
11 ASSEMBLY DWG. 101537 - PAGED - 6-5-77
CAN & COVER MODIFICATION = 20117
LABEL DWG - 90615A

PARTS LIST - ~~101535~~ PL-101535

P.C BOARD DWG. 80138

SCHEMATIC - 101536

PARKO ELECTRONICS CO., INC.

2923 So. Pullman Street
Suite A
Santa Ana, CA 92705

ATTN: DOUG

Purchase Order

Date	P.O. No.
9/10/2002	16849

Vendor
MASTER DISTRIBUTORS 1301 OLYMPIC BLVD SANTA MONICA, CA 90404

Ship To
PARKO ELECTRONICS CO., INC. 2923 So. Pullman Street Suite A Santa Ana, CA 92705

10-10-02
Called Doug
Delivery holding to 10/30/02
12-30-02

Item	Description	Qty	Rate	Amount
Components	PC 4416 MICROTRAN TRANSFORMER	25	33.90	847.50

PLEASE EXPEDITE IF POSSIBLE AND MARK
PURCHASE ORDER TO REQUEST SHIPPING
INFORMATION FROM PARKO.

Cancel
10-30-02
Per Ray 310-452-8510
10-28-08 Quote
1-9 \$117.34
10 93.24
25 43.08

Total \$847.50

PARTS LIST AND TRACEABILITY RECORD

DATE _____ PARKO P/N 101535 () SENSING RELAY, OV-UN VOLTAGE PG 2 OF 4 QTY _____ S/O _____

REFERENCE DES.	PART NUMBER	DESCRIPTION	UNIT	TOTL	INSP	MANUFACTURER	P.O.
	20117 (A)	CAN & COVER	1			PARKO	
TB1	80138C	P.C. BOARD	1				
	90615	LABEL	1				
J1	90GF/63W-HP-10A	HEADER, W/BRN DOT	1			ELEC. INDUSTRIES	
	ES160-1	SILICON POTTING	100 GRAMS				
	7" X 3.25"	KAPTON	1			INSERT IN CAN	
C1, C2	ZA2E103	.01/400V CAPACITOR	2			IMB	
C3	MTP336M050P1B	33/50V CAPACITOR	1			Sub 109D334700002	
C4	CS13BE155K	1.5/20V CAPACITOR	1				
C5, C8	CSR13-2304	6.8/35V CAPACITOR	2			MALLORY	
C6	CS13BF105K	1/35V CAPACITOR	1				
C7	CS13BE225K	2.2/20V CAPACITOR	1				
CR1, CR2, CR3	1N4005	DIODE	3				
CR4-CR7, CR15	1N4002	DIODE	5				
CR8	1N970B	DIODE, ZENER	1				
CR9	1N821A	DIODE, ZENER	1				
CR10 - CR14	1N4148	DIODE	5				

Newark pg 42

50V
33/109D

10 pc 1902
109D 336X 9050C2
Sik # 81F3421

135D
#4000

1595
10 pc
1020
Quake like threat

Dig Key pg 969

33/50V

10 pcs 2550

399-3426-NB
Kenet 33/50V

399-3418 NB

1702

~~Copied~~
X 1263

8-16-05

#30

33/15V

pg 7

Substituted

10/535



PARKO STANDARDS DRAWING NUMBER LIST

Drawing Number	Rev	Date drwn.	Rel.	Rev. Date	Top Drawing	Description
80221					101928	Power Supply Indicator
						10226A
80222						
80223					101931	Power Supply Monitor
						CODE
80224					?	WIRE LIGHT
80225					102309	Quad Komatsu
80226						Quad P+J Board
80227						Quad / Jetway w/ In cgn
80228					Quad	New Sensor Bld
80229					Quad	Quad (DB) Shifter ECU
80230						CEL PHONE ADAPT
80231					Quad	Quad MCU Bld w Potentiometer

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ELECTRONICS COMPANY, INC

PARKO STANDARDS DRAWING NUMBER LIST

Drawing Number	REV	Date drawn	Rev.	Rev. Date	Top Drawing	Description
80207					101734A	STABLISH RELIABILITY PARTS REVISION
80208						MCU CONTROLLER
80209					101740	ALARM MONITOR 2 UPDATED
80210-1 NL					101900	Frequency Bd
80210-2 NL					101900	Voltage Bd
80211 NL					102000	MC68HC MCU BD
80212 NL					102100	MC68HC MCU BD / LEAD
80213 NL 7/92					101909	HCO5P PROTOTYPE BOARD
80214 NL 9/92					101912	MCU SEQUENCER
80215 NL 10/92					101913	NEW SENSIT BOARD REPLACES 101873
80216					102200	J/BTS MCU Controller Bd
80217					102275 J/FET	FET TRANS CONTROL
80218					102300	P/BTS MCU
80219					102375	P/FET MCU
80220					101925	Hughes Alarm Monitor K 101925

PARKO

ELECTRONICS COMPANY, INC.

PARKO STANDARDS DRAWING NUMBER LIST

Drawing Number	REV	Date drwn.	Rev. Rel.	Rev. Date	Top Drawing	Description
80195					101829	QUADRASTAT SINGLE BOARD
80196					101832	SINGLE CHANNEL
80197					101814	MDT - HUMIDITY
80198					101835-101838 101811	QUADRASTAT
80199						SENSOR BOARD Assy
80200					101850	QUADRASTAT - 101850 NEW BOARD
80201					101853	101853 - WIND CONTROLLER
80202						SENSOR BOARD Assy
80203					101860	101860 - MCU CONTROL QUADRASTAT
80204					101873	101873 - SENSOR BOARD
80205					101878	101878 - T.D. MODULE
80206					101881	101881 - SENSOR BOARD

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ELECTRONICS COMPANY, INC.

PARKO STANDARDS DRAWING NUMBER LIST

Drawing Number	Rev	Date drwn.	Rel.	Ref. Date	Top Drawing	Description
80183					100027	200MS TIME DELAY
80184					101577	QUADRASAT OPTICS SENSITIVE BOARD
80185					100866	DC AMPLIFIER
80186					101787	LEACH
80187					101787	LEACH
80188					101755-	HUGHES - VOLTAGE
80189					LI	LI LI
80190-1					101706	HUGHES - VOLTAGE
80190-2						SENSOR
80191-1					101802	HUGHES - VOLTAGE
80191-2						SENSOR - VOLTAGE
80192					85-1135	BRAKE FLASHER
80193					101811	QUADRASAT
80194						QUADRASAT OPTICS SENSITIVE BOARD

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PARKO STANDARDS DRAWING NUMBER LIST

Drawing Number	REV	Date drwn.	Rel.	Rev. Date	Top Drawing	Description
80171-1					101079	HAC- TRANSDUCER
80171-2					"	(GIANT SCREW)
80172					101734	HAC- SENSOR
80173					101556	HAC- SENSOR
80174					101012	TELEDYNE- RYAN TIME DELAY REL.
80175					100659	REDESIGNED DUAL TIME DELAY
80176					101046	REDESIGNED- FREQ. TO DC CONVERTER
80177					100880 100950	TIME DELAY UNITS
80178					101772	ORVONEP- SENSOR
80179					101781	QUADRANT
80180					101781	QUADRANT
80181					101763	IRIGATION- TIME
80172					101784	CONIC 200- 3000

101103

101905

All Drawings
need to be
completed

Top - 101905
Schematic? 101906

Can 20147

Top Day most
important - to
Start Assembly
of components to
be over*

2211 Martin St., Suite 108-702, Irvine, CA 92715, 714/474-1588

3/32/98

Need
both

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED
F	REPLACES REV E WITH CHANGE. SEE CN D09937 G.T 91/19/07	92-02-05	<i>Chas J. Ang</i> 91/07/30 V.S.
G	REVISED PER CN D 02124. NHT 92/06/22	92-05-27 5/29/92 92-05-29	<i>Q. Furtos</i> <i>Q. Furtos</i> V.S.
H	REVISED PER CN D 04557 NHT 92-06-25	92/06/25 7/7/92 92-07-10	<i>Q. Furtos</i> <i>Q. Furtos</i> V.S.
J	INC. PER CN H08414 D.K. 92/11/19	92-12-11 92-12-18	<i>Q. Furtos</i> V.S.

SIZE A	CAGE CODE 12436	DRAWING NO. 6010663
SCALE NONE	REV <i>J</i>	SHEET 2

APPLICATION								REVISIONS																						
UNLESS OTHERWISE SPECIFIED SEE SEPARATE APPLICATION LIST								LTR	DESCRIPTION										DATE				APPROVED							
NEXT ASSY								USED ON																						
2113120								MOD 345																						
2216121																														
SPECIFICATION CONTROL DRAWING																														
REV																														
SHEET																														
REV	H	H	G	G	G	G	J	G																						
SHEET	20	21	22	23	24	25	26	27																						
REV STATUS OF SHEETS			REV		J	J	G	G	G	G	H	H	H	G	G	G	G	G	G	G	G	G	G	G	G	G	H			
			SHEET		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19							
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES					CONTRACT NO. F33657-75-C-0310					GENERAL DYNAMICS <i>Electronics Division San Diego, CA</i>																				
DECIMAL TOLERANCES: .XX .XXX ANGLE					DRAWN G WILLIAMS 11 MAR 77					POWER MONITOR, LINE																				
± .03 ± .010 ± 2°					CHECKED R.T. GUMMINGS 28 MAR 77																									
					ENGINEER F. MACHADO 3/17/77																									
DESIGN ACTIVITY APPROVAL B.G.MERTIES 3/19/77					SIZE A					CAGE CODE 12436					DRAWING NO. 6010663															
RELEASE DATE 29 MAR 77 RE 1					SCALE NONE										SHEET 1 OF 27															

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED
F	REPLACES REV E WITH CHANGE. SEE CN D09937 G.T 91/19/07	92-02-05	<i>John J. Ang</i> 91/07/30 V.S.
G	REVISED PER CN D 02124. NHT 92/06/22	92-05-27 5/29/92 92-05-29	<i>P. Foutoua</i> <i>TCout</i> V.S.
H	REVISED PER CN D 04537. NHT 92-06-25	92/06/26 7/7/92 92-07-10	<i>Ardenashi</i> <i>T. G. Gordon</i> V.S.
J	INC. PER CN H08414 D.K. 92/11/19	92-12-11 92-12-18	<i>P. Foutoua</i> V.S.

SIZE A	CAGE CODE 12436	DRAWING NO. 6010663
SCALE NONE	REV J	SHEET 2

F33657-28-C-0037

SUGGESTED SOURCE(S) OF SUPPLY				
CONTROL NO.	CAGE CODE	VENDOR PART NO.	VENDOR	
6010663-001 3/4/	13979	101526	PARKO ELECTRONICS CO., INC.	
6010663-002 3/4/	13979	101529	16722 MILLIKEN AVENUE	
6010663-003 4/			IRVINE, CA 92664	
6010663-004 3/	13979	101550		
6010663-005 3/	13979	101665		
6010663-006 3/	13979	101900		
6010663-008 3/	13979	101903		
6010663-009 3/	13979	101905		
6010663-001 3/4/	15420	2/	LOGITEK, INC.	
6010663-002 3/4/	15420	2/	1010 CHRISTOPHER ST	
6010663-003 4/			RONKONKOMA NY	
6010663-004 3/	15420	100-096	11770-6922	
6010663-005 3/	15420	100-097-1		
6010663-006 3/	15420	100-525		
6010663-007 3/	15420	100-526		

NOTES:

1 PREPARED IN ACCORDANCE TO MIL-STD-100A.

2/ TO BE ADDED LATER.

3/ -001 AND -002 SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S DATA SHEET, -004, -005, -006, -007, -008 AND -009 SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS SPECIFIED HEREIN.

4/ NOT FOR PROCUREMENT.

SIZE A	CAGE CODE 12436	DRAWING NO. 6010663
SCALE NONE	REV G	SHEET 3

1.	SCOPE	
	THIS DOCUMENT DEFINES THE REQUIREMENTS FOR AC POWER LINE MONITORS, 60 AND 400 HZ.	
2.	APPLICABLE DOCUMENTS	
2.1	GOVERNMENT DOCUMENTS	
	DOCUMENTS ARE APPLICABLE TO THIS SPECIFICATION TO THE EXTENT SPECIFIED IN SECTION 3 OR 4. DOCUMENTS REFERENCED WITHIN THE DOCUMENTS CITED HEREIN SHALL NOT BE APPLICABLE TO THIS SPECIFICATION BECAUSE OF SUCH REFERENCE.	
	SPECIFICATIONS	
	MILITARY	
	MIL-C-83723	CONNECTOR, ELECTRICAL CIRCULAR, ENVIRONMENT RESISTING, RECEPTACLES AND PLUGS, GENERAL SPECIFICATION FOR
	MIL-C-38999	CONNECTOR, ELECTRICAL CIRCULAR, MINIATURE, HIGH DENSITY QUICK DISCONNECT (BAYONET, THREADED AND BREECH COUPLING), ENVIRONMENT RESISTANT, REMOVABLE CRIMP AND HERMETIC SOLDER CONTACTS, GENERAL SPECIFICATION FOR
	STANDARDS	
	MIL-STD-107	PREPARATION AND HANDLING OF INDUSTRIAL PLANT EQUIPMENT AND STORAGE

MIL-STD-1285 MARKING OF ELECTRICAL AND ELECTRONIC PARTS

MIL-STD-810 ENVIRONMENTAL TEST METHODS AND ENGINEERING GUIDELINES

MS3476 CONNECTORS, PLUG, ELECTRIC, SERIES 2, CRIMP TYPE, BAYONET COUPLING, CLASSES A, L, S, AND W

2.2 PRECEDENCE

THE ORDER OF PRECEDENCE IS:

- THIS SPECIFICATION
- MILITARY SPECIFICATIONS
- MILITARY STANDARDS

3. REQUIREMENTS

3.1 GENERAL

3.1.1 -004, -005, AND -007

THESE ITEMS MONITOR POWER SOURCE VOLTAGE, FREQUENCY, AND PHASE ROTATION. THREE TTL OUTPUTS ARE GENERATED ON THE -004 AND -005 AND TWO RELAY CONTACTS ARE CLOSED UPON THE MONITOR SENSING CONFORMANCE WITH ESTABLISHED ELECTRICAL PARAMETERS. THE TTL OUTPUTS ON THE -004 AND -005 REFLECT THE STATUS OF INDIVIDUAL PARAMETERS IN NEAR REAL TIME. RELAY DROP OUT, INITIATED BY A DISCREPANCY IN ANY ONE PARAMETER, MAY BE DELAYED UP TO 2.5 SECONDS. INTEGRAL ELECTRICAL ISOLATION IS PROVIDED BETWEEN AC POWER LINE SENSORY CIRCUITS AND THE DC POWER INPUT, TTL AND RELAY CIRCUITS.

SIZE	CAGE CODE	DRAWING NO.
A	12436	6010663
SCALE	NONE	REV G
		SHEET 5

5-804, 3/91

3.1.2 -006, -008 AND -009

THESE ITEM(S) MONITOR POWER SOURCE VOLTAGE AND FREQUENCY AND PROVIDE TWO PAIRS OF RELAY CONTACTS WHICH ARE CLOSED UPON THE MONITOR SENSING CONFORMANCE WITH THE ESTABLISHED ELECTRICAL PARAMETERS. THE AC AND DC INPUTS SHALL BE ISOLATED FROM EACH OTHER AND CASE GROUND.

3.2 CHARACTERISTICS

3.2.1 ELECTRICAL

3.2.1.1 DC INPUT POWER, RANGE

- 004, -005: 20 TO 32 VOLTS, 100 MILLIAMPERES, MAXIMUM
- 006, -008, -009: 20 TO 32 VOLTS, 250 MILLIAMPERES, MAXIMUM
- 007: NOT APPLICABLE

3.2.1.2 SENSING VOLTAGE, RMS

THE SENSING VOLTAGE, RMS, SHALL BE MEASURED PHASE TO NEUTRAL IN A 3 PHASE, 4 WIRE, WYE CONNECTED SYSTEM.

- 005: 45 TO 74 HZ, 90 TO 145 VRMS
- 004: 365 TO 430 HZ, 90 TO 145 VRMS
- 007: 360 TO 440 HZ, 104 TO 126 VRMS

THE INPUT IMPEDANCE, PHASE TO NEUTRAL, SHALL BE NOT LESS THAN 1K OHMS.

SIZE	CAGE CODE	DRAWING NO.
A	12436	6010663
SCALE	NONE	REV G
		SHEET 6

5-804, 3/91

F30651-83-C-0037

3.2.1.2.1 VOLTAGE TRANSIENTS (-006, -008, -009)

THE ITEM SHALL BE CAPABLE OF WITHSTANDING VOLTAGE TRANSIENTS IN ACCORDANCE WITH MIL-STD-107.

3.2.1.3 OPERATION

- THE INTERNAL RELAY SHALL BE ENERGIZED, WITHIN A DELAY OF 100 MILLISECONDS MAXIMUM AFTER THE APPLICATION OF DC. -006, -008, -009 RELAY PICKUP WILL OCCUR BETWEEN 1.5 AND 2.5 SECONDS.
- THE FAULT OUTPUT SHALL BE A RELAY ENERGIZED WITH NOMINAL VOLTAGE, FREQUENCY, AND PHASE ROTATION (WHEN REQUIRED) POWER APPLIED TO THE UNIT. WHEN A FAULT IS DETECTED, THE RELAY SHALL CHANGE STATE.

3.2.1.4 RELAY CONTACTS

- DPDT, 2 AMPERES RESISTIVE, 1 AMPERE INDUCTIVE AT 28 VDC MIN.
- THE TIME DELAY ON DROPOUT SHALL BE EXTERNALLY ADJUSTABLE FOR THE -004 AND -005 FROM 0.25 SECONDS TO 2.5 SECONDS.
- THE -006 DROPOUT TIME SHALL NOT EXCEED 250 MILLISECONDS.
- THE -008 DROPOUT TIME DELAY SHALL BE BETWEEN 150 MILLISECONDS AND 250 MILLISECONDS FOR VD1 AND VD2, AND SHALL NOT EXCEED 250 MILLISECONDS FOR FD1 AND FD2.
- THE -009 DROPOUT TIME DELAY SHALL BE BETWEEN 150 MILLISECONDS AND 250 MILLISECONDS FOR VD1, VD2, FD1 AND FD2.
- FOR THE -006, -008, AND -009: EACH RELAY CONTACT SHALL NOT EXCEED 0.15 OHMS CONTACT RESISTANCE AT 2 AMPS DC.

SIZE	CAGE CODE	DRAWING NO.
A	12436	6010663
SCALE	NONE	REV H
		SHEET 7

5-804, 3/91

3.2.1.5 FAULT OUTPUTS (-004 AND -005 ONLY)

FAULT OUTPUTS FOR VOLTAGE, FREQUENCY, AND PHASE ROTATION SHALL BE PROVIDED AND SHALL CONFORM TO THE FOLLOWING:

- TTL COMPATIBLE
 - SOURCE CURRENT SHALL BE 1 MILLIAMPERE MINIMUM AT 3.5 ± 1 VDC, FOR A NO FAULT CONDITION.
 - SINK CURRENT SHALL BE 10 MILLIAMPERES MINIMUM AT 0.5 VDC MAXIMUM, FOR A FAULT CONDITION.
- THE RESPONSE TIME WITH A 10 % OVER TRIP SIGNAL SHALL NOT EXCEED THE FOLLOWING:
 - 005: 150 MILLISECONDS
 - 004: 30 MILLISECONDS

3.2.1.6 TRIP POINT RANGE

THE VOLTAGE TRIP POINT ADJUSTMENTS FOR THE -004 AND -005 INCOMING LINE VOLTAGE SHALL BE MADE ONE PHASE AT A TIME, I.E.; TWO PHASES MAINTAINED AT NOMINAL WITH THE REMAINING PHASE VARIED INDEPENDENTLY. THE VOLTAGE TRIP POINT FOR THE -006, -007, -008 AND -009 ARE FACTORY SET AND FIXED.

- HIGH VOLTAGE
 - 004, -005: EXTERNALLY ADJUSTABLE FROM 115 TO 145 VAC, MINIMUM, SINGLE PHASE TO NEUTRAL, RESET DIFFERENTIAL 2 VAC, MAXIMUM, WITH A STABILITY OF ± 1 VAC.
 - 006, -008, -009: FACTORY SET AT 268 VAC L-L (VD1) AND 156 VAC L-N (VD2).
 - 007: FACTORY SET AT 127 VAC.

SIZE	CAGE CODE	DRAWING NO.
A	12436	6010663
SCALE	NONE	REV H
		SHEET 8

5-804, 3/91

- B. LOW VOLTAGE
- 1) -004, -005: EXTERNALLY ADJUSTABLE FROM 90 TO 108 VAC, MINIMUM. SINGLE PHASE TO NEUTRAL, RESET DIFFERENTIAL 2 VAC, MAXIMUM, WITH A STABILITY OF ± 1 VAC.
 - 2) -006, -008, -009: FACTORY SET AT 177 VAC L-L (VD1)
 - 3) -007: FACTORY SET AT 103 VAC.
- C. HIGH FREQUENCY
- 1) -005: EXTERNALLY ADJUSTABLE FROM 63 TO 74 HZ, MINIMUM. RESET DIFFERENTIAL, 1 HZ MAXIMUM. STABILITY ± 0.5 HZ.
 - 2) -006, -008, -009: FACTORY SET AT 67 HZ (FD1).
- D. HIGH FREQUENCY
- 1) -004: EXTERNALLY ADJUSTABLE FROM 410 TO 430 HZ, MINIMUM. RESET DIFFERENTIAL, 6 HZ MAXIMUM. STABILITY ± 3.0 HZ.
 - 2) -006, -008, -009: FACTORY SET AT 444 HZ (FD2).
 - 3) -007: FACTORY SET AT 441 HZ.
- E. LOW FREQUENCY
- 1) -005: EXTERNALLY ADJUSTABLE FROM 45 TO 55 HZ, MINIMUM. RESET DIFFERENTIAL, 1 HZ MAXIMUM. STABILITY ± 0.5 HZ.
 - 2) -006, -008, -009: FACTORY SET AT 46 HZ (FD1).
- F. LOW FREQUENCY
- 1) -004: EXTERNALLY ADJUSTABLE FROM 365 TO 385 HZ, MINIMUM. RESET DIFFERENTIAL, 6 HZ MAXIMUM. STABILITY ± 3.0 HZ.
 - 2) -006, -008, -009: FACTORY SET AT 356 HZ (FD2).
 - 3) -007: FACTORY SET AT 359 HZ

SIZE	CAGE CODE	DRAWING NO.
A	12436	6010663
SCALE	NONE	REV H
		SHEET 9

5-804, 3/91

3.2.1.7 PHASE SEQUENCE (-004, -005, -007 ONLY)

A. A, B, C.

3.2.2 PHYSICAL

3.2.2.1 DIMENSIONAL CONFIGURATION

- A. -004 AND -005 SHALL BE AS DEPICTED ON FIGURE 1.
B. -006, -008, -009 SHALL BE AS DEPICTED ON FIGURE 3.
C. -007 SHALL BE AS DEPICTED ON FIGURE 4.

3.2.2.2 WEIGHT

- A. -004, -005 40 OUNCES MAXIMUM
B. -006, -008, -009 64 OUNCES MAXIMUM
C. -007 16 OUNCES MAXIMUM

3.2.2.3 CONNECTOR

- A. -005
1) MUST MATE WITH M83723/75R1624N CONNECTOR.
B. -004
1) MUST MATE WITH M83723/75R16247 CONNECTOR
C. -006, -008, -009
1) MUST MATE WITH D38999/46WD35SN CONNECTOR.
D. -007
1) MUST MATE WITH MS3476W20-16S CONNECTOR

SIZE	CAGE CODE	DRAWING NO.
A	12436	6010663
SCALE	NONE	REV G
		SHEET 10

5-804, 3/91

F33657-88-C-0037

3.2.2.4 PIN CONNECTIONS

A. -004, -005

- PIN 1: PHASE A
PIN 2: PHASE B
PIN 3: PHASE C
PIN 4: NEUTRAL
PIN 5: K1-A1 NORMALLY OPEN
PIN 6: K1-A3 NORMALLY CLOSED
PIN 7: K1-B1 NORMALLY OPEN
PIN 8: K1-B3 NORMALLY CLOSED
PIN 9: NO CONNECTION
PIN 10: VOLTAGE OVER/UNDER FAULTS
PIN 11: FREQUENCY OVER/UNDER FAULTS
PIN 12: PHASE OVER/UNDER FAULTS
PIN 13: +28 VDC
PIN 14: -28 VDC
PIN 15: CASE GROUND
PIN 16: NO CONNECTION
PIN 17: K1-A2 COMMON
PIN 18: K1-B2 COMMON
PIN 19: NO CONNECTION
PIN 20: NO CONNECTION
PIN 21: NO CONNECTION
PIN 22: NO CONNECTION
PIN 23: NO CONNECTION
PIN 24: NO CONNECTION

B. -006, -008, -009

- PIN 1: NO CONNECTION
PIN 2: NO CONNECTION
PIN 3: NO CONNECTION
PIN 4: NO CONNECTION
PIN 5: NO CONNECTION

SIZE	CAGE CODE	DRAWING NO.
A	12436	6010663
SCALE	NONE	REV G
		SHEET 11

5-804, 3/91

- PIN 6: NO CONNECTION
PIN 7: NO CONNECTION
PIN 8: LINE HIGH
PIN 9: LINE NEUTRAL
PIN 10: LINE LOW
PIN 11: 28 VDC
PIN 12: 28 V RETURN
PIN 13: CASE GROUND
PIN 14: VD1 - A COMMON
PIN 15: VD1 - B COMMON
PIN 16: VD1 - B NORMALLY OPEN
PIN 17: VD1 - B NORMALLY CLOSED
PIN 18: VD1 - A NORMALLY OPEN
PIN 19: VD1 - A NORMALLY CLOSED
PIN 20: FD1 - A COMMON
PIN 21: FD1 - B COMMON
PIN 22: FD1 - B NORMALLY OPEN
PIN 23: FD1 - B NORMALLY CLOSED
PIN 24: FD1 - A NORMALLY OPEN
PIN 25: FD1 - A NORMALLY CLOSED
PIN 26: FD2 - A COMMON
PIN 27: FD2 - B COMMON
PIN 28: FD2 - B NORMALLY OPEN
PIN 29: FD2 - B NORMALLY CLOSED
PIN 30: FD2 - A NORMALLY OPEN
PIN 31: FD2 - A NORMALLY CLOSED
PIN 32: VD2 - A COMMON
PIN 33: VD2 - B COMMON
PIN 34: VD2 - B NORMALLY OPEN
PIN 35: VD2 - B NORMALLY CLOSED
PIN 36: VD2 - A NORMALLY OPEN
PIN 37: VD2 - A NORMALLY CLOSED

SIZE	CAGE CODE	DRAWING NO.
A	12436	6010663
SCALE	NONE	REV G
		SHEET 12

5-804, 3/91

C. -007

PIN A: PHASE B
PIN B: PHASE C
PIN C: NEUTRAL
PIN D: NO CONNECTION
PIN E: NO CONNECTION
PIN F: NO CONNECTION
PIN G: K1-A1 NORMALLY OPEN
PIN H: K1-A3 NORMALLY CLOSED
PIN J: K1-B1 NORMALLY OPEN
PIN K: K1-B3 NORMALLY CLOSED
PIN L: PHASE A
PIN M: NO CONNECTION
PIN P: NO CONNECTION
PIN R: K1-A2 COMMON
PIN S: K1-B2 COMMON

3.2.3 ENVIRONMENTAL REQUIREMENTS

THE ITEM(S) SHALL FUNCTION AS SPECIFIED, WITHOUT DEGRADATION, WHEN SUBJECTED TO ANY COMBINATION OF OPERATING/NONOPERATING ENVIRONMENTS DEFINED HEREIN.

3.2.3.1 TEMPERATURE

A.	OPERATING	-004, -005, -006, -008, -009	0°C TO 71°C
		-007	-40°C TO +85°C
B.	NONOPERATING	-004, -005, -006, -008, -009	-40°C TO +85°C
		-007	-65°C TO +150°C

SIZE	CAGE CODE	DRAWING NO.
A	12436	6010663
SCALE	NONE	REV G
		SHEET 13

3.2.3.2 HUMIDITY

THE ITEM(S) SHALL WITHSTAND THE EFFECTS OF HUMIDITIES UP TO 100%, INCLUDING CONDITIONS WHEREIN CONDENSATION TAKES PLACE ON THE ITEM(S) SPECIFIED. THE ITEM(S) SHALL WITHSTAND THE ABOVE DURING OPERATING AND NONOPERATING CONDITIONS.

3.2.3.3 ALTITUDE

A.	OPERATING	-004, -005, -006, -008, -009	0 TO 6,000 FT MIN
		-007	0 TO 70,000 FT MIN
B.	NONOPERATING	-004, -005, -006, -008, -009	0 TO 40,000 FT MIN
		-007	0 TO 70,000 FT MIN

3.2.3.4 VIBRATION

- A. OPERATING
NO REQUIREMENT
- B. NONOPERATING

THE RESONANCE FREQUENCY OF THE ITEM(S) SHALL BE A MINIMUM OF 30 HZ. THE ITEM(S) SHALL HAVE THE CAPABILITY OF BEING TESTED IN ACCORDANCE WITH MIL-STD-810, METHOD 514, PROCEDURE X, EXCEPT THE SELECTED TEST CURVE SHALL BE AS SHOWN IN FIGURE 2. AT THE TERMINATION OF THE VIBRATION TEST, A THOROUGH VISUAL INSPECTION SHALL BE MADE TO DETECT ANY DAMAGE CAUSED BY THE TEST. A FUNCTIONAL PERFORMANCE TEST WILL BE RUN BOTH BEFORE AND AFTER THE VIBRATION TEST TO DETERMINE THAT THERE HAS BEEN NO DEGRADATION OF PERFORMANCE BELOW THE SPECIFIED LIMITS AS A RESULT OF THE VIBRATION TEST.

SIZE	CAGE CODE	DRAWING NO.
A	12436	6010663
SCALE	NONE	REV G
		SHEET 14

F33657-88-C-0037

3.2.3.5 SHOCK

- A. OPERATING
NO REQUIREMENT
- B. NONOPERATING

THE ITEM(S) SHALL HAVE THE CAPABILITY OF BEING TESTED IN ACCORDANCE WITH MIL-STD-810, METHOD 516, PROCEDURE I, EXCEPT THE SHOCK PULSE SHALL BE ONE-HALF SINE WAVE, 7.0 ±0.4 G'S FOR 50 ±1 MILLISECONDS. AT THE TERMINATION OF THE SHOCK TEST, A THOROUGH VISUAL INSPECTION SHALL BE MADE TO DETECT ANY DAMAGE CAUSED BY THE TEST. A FUNCTIONAL PERFORMANCE TEST WILL BE RUN BOTH BEFORE AND AFTER THE SHOCK TEST TO DETERMINE THAT THERE HAS BEEN NO DEGRADATION OF PERFORMANCE BELOW THE SPECIFIED LIMITS AS A RESULT OF THE SHOCK TEST.

3.2.3.6 DIELECTRIC STRENGTH

- A. 1000 VRMS, MINIMUM, AT 60 HZ, PINS TO CASE. ON -004 AND -005, EXCLUDE PIN 15. ON -006, -008, -009 EXCLUDE PIN 13.

3.2.3.7 INSULATION RESISTANCE

- A. 100 MEGOHMS, MINIMUM, AT 500 VDC, PINS TO CASE.

3.3 DESIGN AND CONSTRUCTION

THE DETAIL DESIGN OF THE ITEM(S) SHALL BE ACCOMPLISHED BY THE MANUFACTURER, SUBJECT TO THE REQUIREMENTS HEREIN, WHICH ARE SPECIFIED ONLY TO THE EXTENT CONSIDERED NECESSARY TO OBTAIN THE DESIRED ITEM(S).

SIZE	CAGE CODE	DRAWING NO.
A	12436	6010663
SCALE	NONE	REV G
		SHEET 15

3.4 PRODUCT MARKINGS

3.4.1 ITEM IDENTIFICATION MARKING

ITEMS SHALL BE MARKED IN ACCORDANCE WITH THE TYPE I REQUIREMENTS OF MIL-STD-1285. MINIMUM MARKING SHALL BE AS FOLLOWS:

- A. MANUFACTURER'S NAME, SYMBOL, OR CAGE CODE
B. MANUFACTURER'S PERMANENT PART NUMBER
C. SERIALIZATION NUMBER

3.5 DOCUMENTATION

DOCUMENTATION REQUIRED FOR SUBMITTAL SHALL BE AS SPECIFIED IN PARAGRAPH 4.

3.6 SPECIAL TESTING

THE MANUFACTURER IS RESPONSIBLE FOR SCREENING AND FINAL ADJUSTMENTS AS SPECIFIED IN PARAGRAPH 4.

3.7 INTERCHANGEABILITY

DELIVERABLE HARDWARE HAVING THE SAME PART NUMBER IDENTIFIER SHALL BE INTERCHANGEABLE FOR FORM, FIT, AND FUNCTION.

SIZE	CAGE CODE	DRAWING NO.
A	12436	6010663
SCALE	NONE	REV G
		SHEET 16

3.7.1 PRODUCT CHANGE

THE MANUFACTURER SHALL NOTIFY THE PROCURING ACTIVITY PRIOR TO THE IMPLEMENTATION OF ANY CHANGE OF THE PRODUCT WHICH MAY AFFECT PERFORMANCE, QUALITY, RELIABILITY, OR INTERCHANGEABILITY. SUCH NOTIFICATION SHALL INCLUDE A THOROUGH DESCRIPTION OF THE PROPOSED CHANGE AND A SUGGESTED TEST PLAN DESIGNED TO DEMONSTRATE THAT THE CHANGE WILL NOT ADVERSELY AFFECT THE SPECIFIED REQUIREMENTS FOR PERFORMANCE, QUALITY, RELIABILITY, OR INTERCHANGEABILITY. THE PROCURING ACTIVITY WILL APPROVE OR DISAPPROVE THE CHANGE AND NOTIFY THE MANUFACTURER. AT THE MANUFACTURER'S OPTION, ITEMS INCORPORATING THE CHANGE MAY BE MANUFACTURED AND TESTED PRIOR TO APPROVAL; HOWEVER, APPROVAL FROM THE PROCURING ACTIVITY MUST BE RECEIVED PRIOR TO SHIPMENT.

3.8 RELIABILITY

THE MTBF OF THE ITEM(S) SHALL BE NOT LESS THAN 1×10^5 HOURS WHEN OPERATING UNDER THE FOLLOWING CONDITIONS.

- A. TEMPERATURE 30°C
- B. HUMIDITY 60%

3.8.1 REMOVED

3.8.1.1 REMOVED

3.9 WORKMANSHIP

THE ITEMS SHALL BE MANUFACTURED AND PROCESSED IN SUCH A MANNER AS TO BE UNIFORM IN QUALITY, AND EXTERNAL SURFACES SHALL BE FREE FROM TOOL MARKS, BURNS, DEEP SCRATCHES, AND ANY OTHER DEFECTS THAT WILL AFFECT LIFE, SERVICEABILITY, OR APPEARANCE.

SIZE	CAGE CODE	DRAWING NO.	
A	12436	6010663	
SCALE	NONE	REV	G
		SHEET	17

5-804, 3/91

3.10 SAFETY

ENGINEERING AND DESIGN CRITERIA SHALL CONFORM TO BEST COMMERCIAL STANDARDS FOR EQUIPMENT OF THIS CATEGORY AND SHALL NOT PRESENT ANY SIGNIFICANT HAZARDS TO PERSONNEL DURING NORMAL OPERATION OR MAINTENANCE.

4. QUALITY ASSURANCE PROVISIONS

4.1 TESTING

NO PROVISIONS OR PORTIONS OF THIS DOCUMENT, EXCEPT AS SPECIFIED IN PARAGRAPH 3.6, SHALL BE CONSTRUED TO REQUIRE THE SUPPLIER TO MAKE ANY PRODUCTION OR PRESHIPMENT TESTS OTHER THAN THOSE NORMALLY PERFORMED DURING MANUFACTURE AND PACKAGING OF THE ITEM(S) DESCRIBED HEREIN. UNITS SUBMITTED OR SUPPLIED IN ACCORDANCE WITH THIS DOCUMENT SHALL BE CAPABLE OF MEETING OR PASSING ANY AND ALL REQUIREMENTS SPECIFIED HEREIN. THE PROCURING ACTIVITY RESERVES THE RIGHT TO PERFORM INSPECTIONS TO ASSURE THAT SUPPLIES AND SERVICES CONFORM TO THE PRESCRIBED REQUIREMENTS.

4.2 DOCUMENTATION SUBMITTAL

SUPPLIER SHALL SUBMIT DOCUMENTATION AS SPECIFIED IN PARAGRAPH 4.2.1 AND AS STATED IN THE REQUEST FOR QUOTES.

4.2.1 REMOVED

4.3 SCREENING/BURN-IN/TESTING

SIZE	CAGE CODE	DRAWING NO.	
A	12436	6010663	
SCALE	NONE	REV	G
		SHEET	18

5-804, 3/91

F33657-88-C-0037

4.3.1 SCREENING/BURN-IN/TESTING

EACH ITEM DELIVERED SHALL BE SUBJECTED TO A BURN-IN OF 96 HOURS, MINIMUM, UNDER THE FOLLOWING CONDITIONS:

- A. $T_A = 70^\circ, \pm 1^\circ\text{C}$
- B. SENSING POWER APPLIED FOR -004, -005, AND -007 SHALL BE 115, ± 10 VRMS, THREE-PHASE. FOR -006, -008, -009 USE SENSING POWER OF 220 ± 10 VRMS AT 50/60/400 HZ
- C. 28 VDC, APPLIED (-004, -005, -006, -008, -009)
- D.
 - 1) 12 HOURS, MIN, AT 70°C , MIN
 - 2) 24 HOURS, MIN, AT $T_A = 23^\circ, \pm 10^\circ\text{C}$
 - 3) 12 HOURS, MIN, AT 70°C , MIN
 - 4) 24 HOURS, MIN, AT $T_A + 23^\circ, \pm 10^\circ\text{C}$
 - 5) X HOURS, AT $T_A = 23^\circ, \pm 10^\circ\text{C}$ AND/OR 70°C , MIN

TOTAL HOURS SHALL = 96 HOURS, MIN

DURING BURN-IN, THE ITEMS SHALL BE MONITORED TO ASSURE NO FAILURES OCCUR. IF A FAILURE IS OBSERVED DURING BURN-IN, THE ITEM SHALL BE REMOVED, THE FAILURE MODE ESTABLISHED, GDED SHALL BE NOTIFIED OF THE FAILURE AND OF THE CORRECTIVE ACTION TAKEN. THE FAILED ITEM AFTER REPAIRS MAY BE RETURNED TO BURN-IN. FOR THE REPAIRED ITEM, TIME EQUALS ZERO HOURS. ANY ONE ITEM MAY BE REPAIRED A MAXIMUM OF THREE (3) TIMES.

4.3.1.1 FUNCTIONAL TESTING, $T_A = 25^\circ, \pm 5^\circ\text{C}$

EACH ITEM UPON COMPLETING BURN-IN SHALL BE SUBJECTED TO A FUNCTIONAL TEST THAT SHALL SATISFY THE REQUIREMENTS SPECIFIED IN PARAGRAPH 3.2.1 AND SUBPARAGRAPHS THERE TO.

SIZE	CAGE CODE	DRAWING NO.	
A	12436	6010663	
SCALE	NONE	REV	H
		SHEET	19

5-804, 3/91

4.3.1.2 ADJUSTMENTS

EACH ITEM, PRIOR TO SHIPMENT, SHALL HAVE THE FOLLOWING ADJUSTMENTS MADE. THE POTENTIOMETERS THAT CONTROL THESE ADJUSTMENTS SHALL BE SEALED, AFTER FINAL ADJUSTMENT, IN SUCH A MANNER THAT IF A POTENTIOMETER SETTING HAS BEEN CHANGED FROM THE FACTORY SETTING, SAID CHANGE SHALL BE CLEARLY VISIBLE.

- A. VOLTAGE, $\pm 0.5\%$ (VD1), $\pm 1.0\%$ (VD2), 50 AND 60 HZ (-006, -008, -009) $\pm 5\text{V}$, 50 AND 60 HZ (-005)
 - 1) HIGH
 - 005: 127.0 VRMS (HI-V)
 - 006, -008, -009: 268.0 VRMS L-L (VD1) AND 156.0 VRMS L-N (VD2)
 - 2) LOW
 - 005: 107.0 VRMS (LO-V)
 - 006, -008, -009: 177.0 VRMS L-L (VD1)
- B. FREQUENCY, ± 5 HZ, 50 AND 60 HZ
 - 1) HIGH
 - 005: 67 HZ (HI-F)
 - 006, -008, -009: 67 HZ (FD1)
 - 2) LOW
 - 005: 46 HZ (LO-F)
 - 006, -008, -009: 46 HZ (FD1)
- C. VOLTAGE, $\pm 0.5\%$ (VD1), $\pm 1.0\%$ (VD2), 400 HZ (-006, -008, -009) $\pm 5\text{V}$, 400 HZ (-004, -007)
 - 1) HIGH
 - 004: 125.0 VRMS (HI-V)
 - 006, -008, -009: 268.0 VRMS L-L (VD1) AND 156.0 L-N VRMS (VD2)
 - 007: 127.0 VRMS

SIZE	CAGE CODE	DRAWING NO.	
A	12436	6010663	
SCALE	NONE	REV	H
		SHEET	20

5-804, 3/91

- 2) LOW
 -004: 103.0 VRMS (LO-V)
 -006, -008, -009: 177.0 VRMS L-L (VD1)
 -007: 103.0 VRMS

D. FREQUENCY, ± 1 HZ, 400 HZ

- 1) HIGH
 -004: 421.0 HZ (HI-F)
 -006, -008, -009: 444.0 HZ (FD2)
 -007: 441.0 HZ

2) LOW

- 004: 379.0 HZ (LO-F)
 -006, -008, -009: 356.0 HZ (FD2)
 -007: 359.0 HZ

E. TIME DELAY

- 1) -004, -005, -007: 2 SECONDS (± 0.2 SECONDS) (ON & OFF).
 2) -006: 1.5 SECONDS, MINIMUM, 2.5 SECONDS, MAXIMUM ON. 250 MILLISECONDS OFF.
 3) -008: 1.5 SECONDS, MINIMUM, 2.5 SECONDS, MAXIMUM ON. 150 MILLISECONDS TO 250 MILLISECONDS OFF FOR VD1 AND VD2. 250 MILLISECONDS, MAXIMUM OFF FOR FD1 AND FD2.
 4) -009: 1.5 SECONDS, MINIMUM, 2.5 SECONDS, MAXIMUM ON. 150 MILLISECONDS TO 250 MILLISECONDS OFF FOR VD1, VD2, FD1 AND FD2.

F. REMOVED

4.3.1.3 CONTACTS (-006, -008, -009)

EACH RELAY CONTACT SHALL BE TESTED FOR A MAXIMUM OF 0.15 OHMS AT 2 AMPS DC.

SIZE A	CAGE CODE 12436	DRAWING NO. 6010663
SCALE NONE	REV H	SHEET 2

5. PREPARATION FOR DELIVERY

5.1 INSPECTION

ITEMS SUPPLIED UNDER THIS DOCUMENT SHALL BE EXAMINED TO VERIFY CORRECTNESS OF PRODUCT IDENTIFICATION AND TO ALLOW A FINAL CHECK FOR EVIDENCE OF DAMAGE OR VIOLATION OF EXTERNAL COSMETICS JUST PRIOR TO SHIPMENT PACKAGING. ITEMS WITH DEFECTS SHALL NOT BE SUPPLIED.

5.2 UNIT PACKAGE

THE UNIT PACKAGE IS THE PRIMARY PROTECTION PACKAGE FOR THE ITEM. THE ITEM SHALL BE HELD INDIVIDUALLY BY THIS PACKAGE.

5.2.1 UNIT PACKAGE MARKING

THE UNIT PACKAGE SHALL BE MARKED WITH INFORMATION TO COMPLETE THE FOLLOWING:

- A. SUPPLIER'S NAME, SYMBOL, OR CAGE CODE.
 B. SUPPLIER'S IDENTIFYING NUMBER
 C. THE PROCURING ACTIVITIES CONTROL NUMBER AND APPLICABLE DASH NUMBER.

5.3 SHIPPING CONTAINER

THE UNIT PACKAGE(S) SHALL BE SURROUNDED BY A CONTAINER THAT WILL ENSURE ACCEPTANCE BY COMMON CARRIER, EITHER SURFACE OR AIR, AND YET AFFORD SUFFICIENT PROTECTION FROM DAMAGE DURING ALL PHASES OF SHIPMENT.

SIZE A	CAGE CODE 12436	DRAWING NO. 6010663
SCALE NONE	REV G	SHEET 22

F33657-88-C-0037

5.3.1 SHIPPING CONTAINER MARKING

THE SHIPPING CARTON OR CONTAINER SHALL BE MARKED WITH INFORMATION TO COMPLETE THE FOLLOWING:

- A. CONSIGNEE'S NAME AND ADDRESS
 B. CONSIGNEE'S IN-HOUSE DELIVERY POINT
 C. PURCHASE ORDER NUMBER
 D. CONSIGNOR'S NAME AND ADDRESS

NOTES

- A. ORDERING DATA
 THE PURCHASE ORDER OR CONTRACT SHALL SPECIFY THE FOLLOWING:
 1. THIS DOCUMENT NUMBER, APPROPRIATE DASH NUMBERS AND REVISION LETTER.
 B. PART NUMBER
 ITEM(S) SUPPLIED UNDER THIS DOCUMENT SHALL BE IDENTIFIED BY THE SUPPLIER WITH A PERMANENT PART NUMBER THAT REFLECTS THE PROCURING ACTIVITIES REQUIREMENTS, AS SPECIFIED HEREIN.
 C. REMOVED

SIZE A	CAGE CODE 12436	DRAWING NO. 6010663
SCALE NONE	REV G	SHEET 23

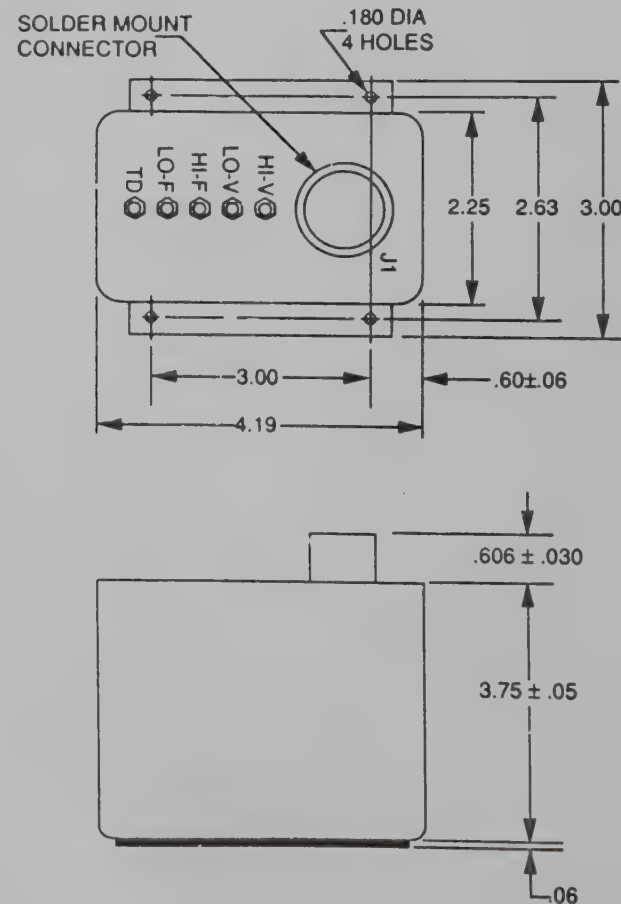
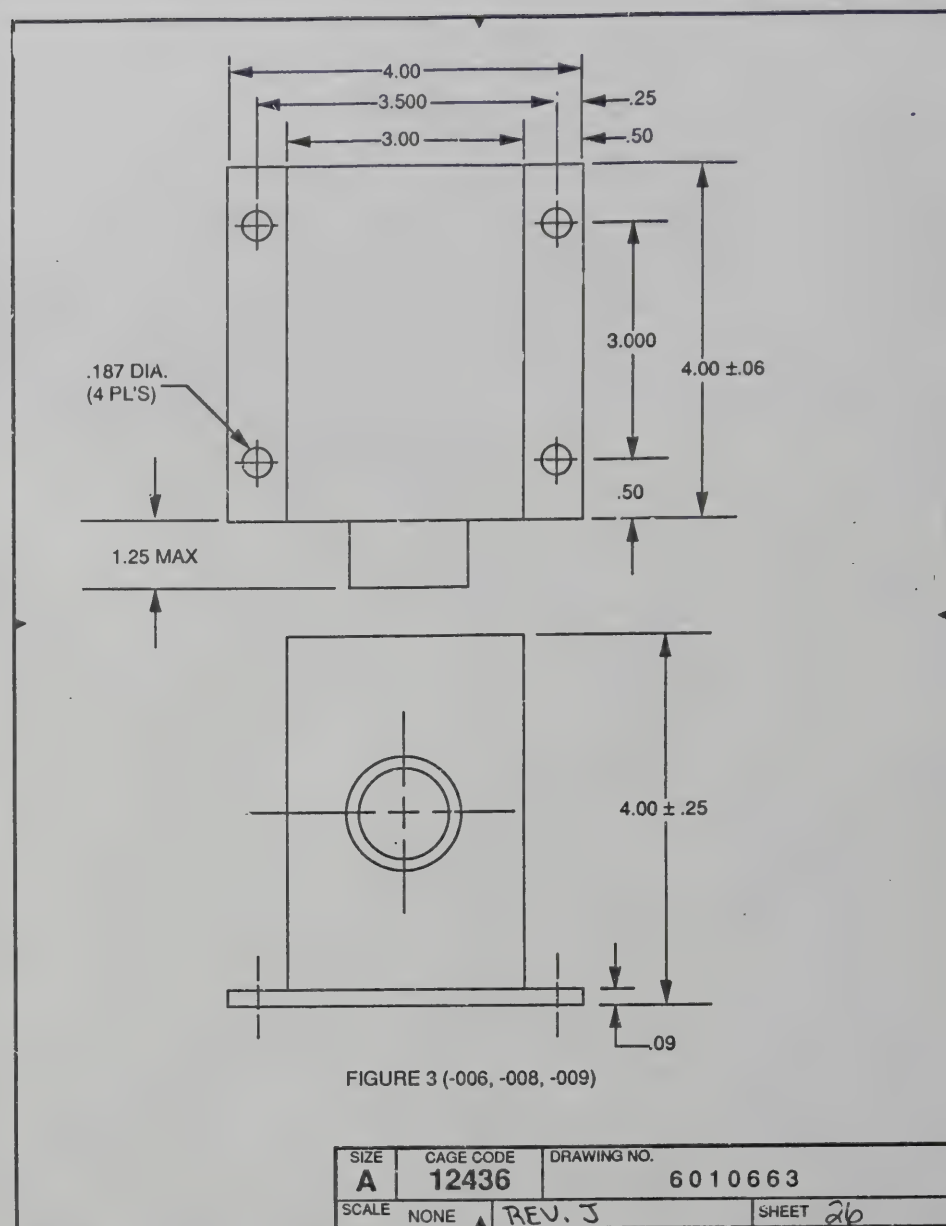
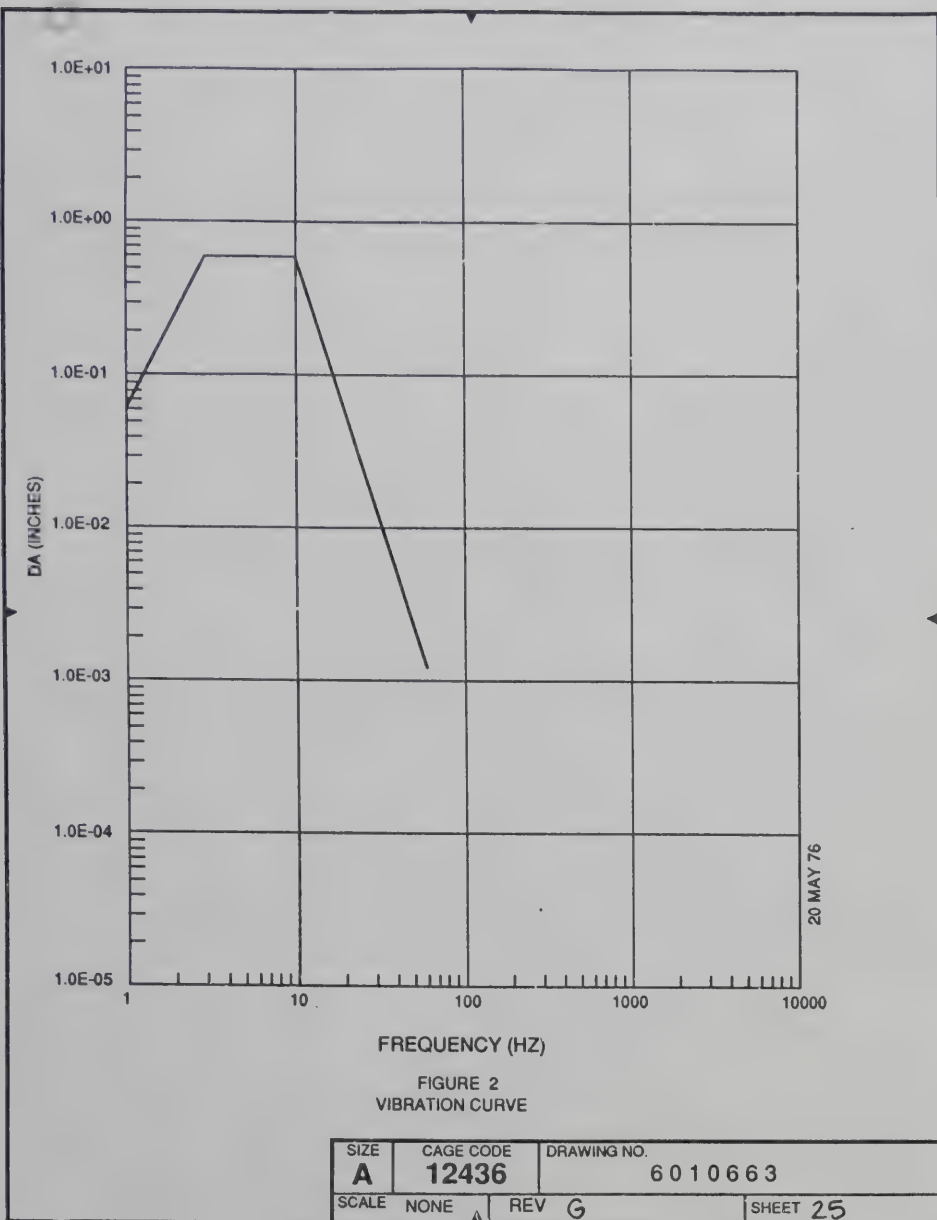
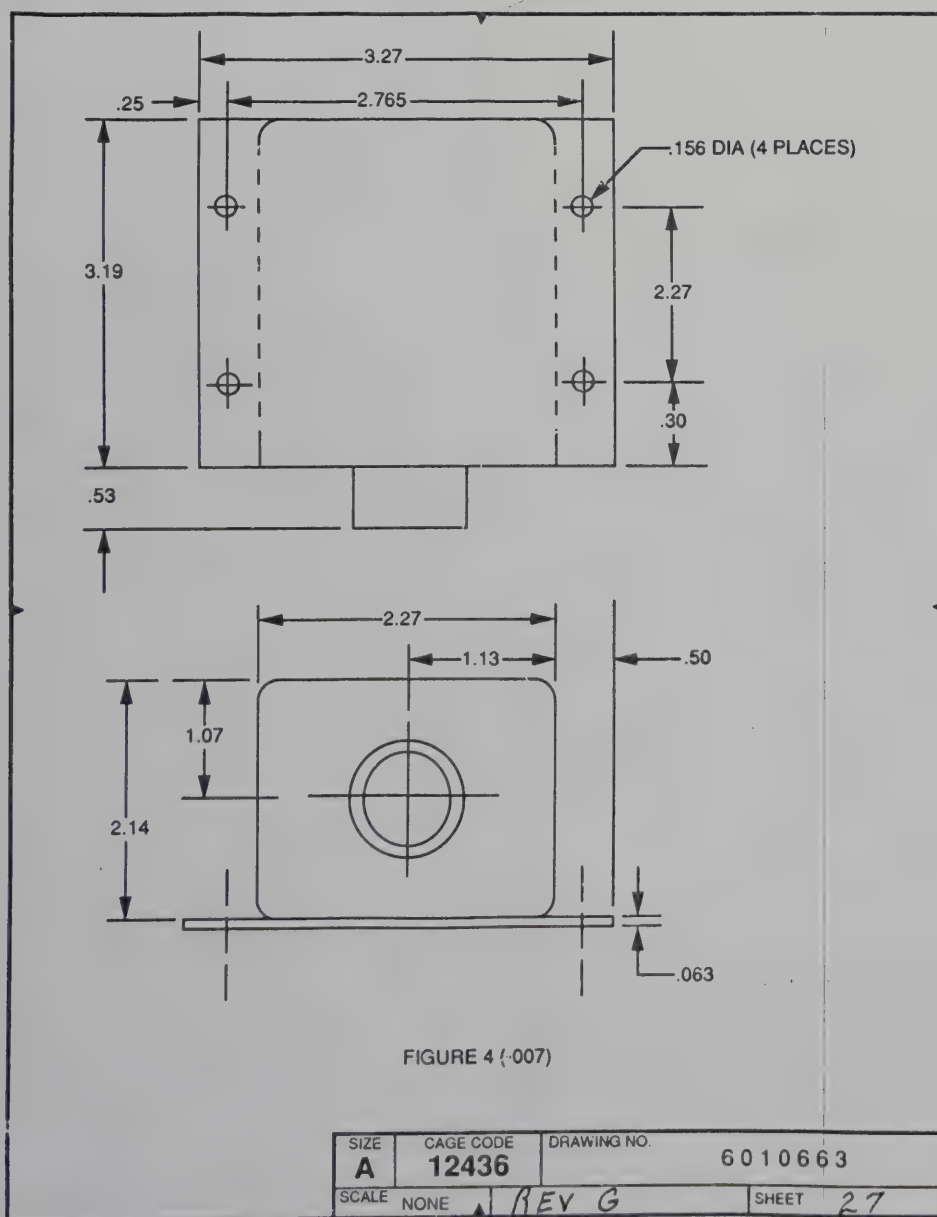


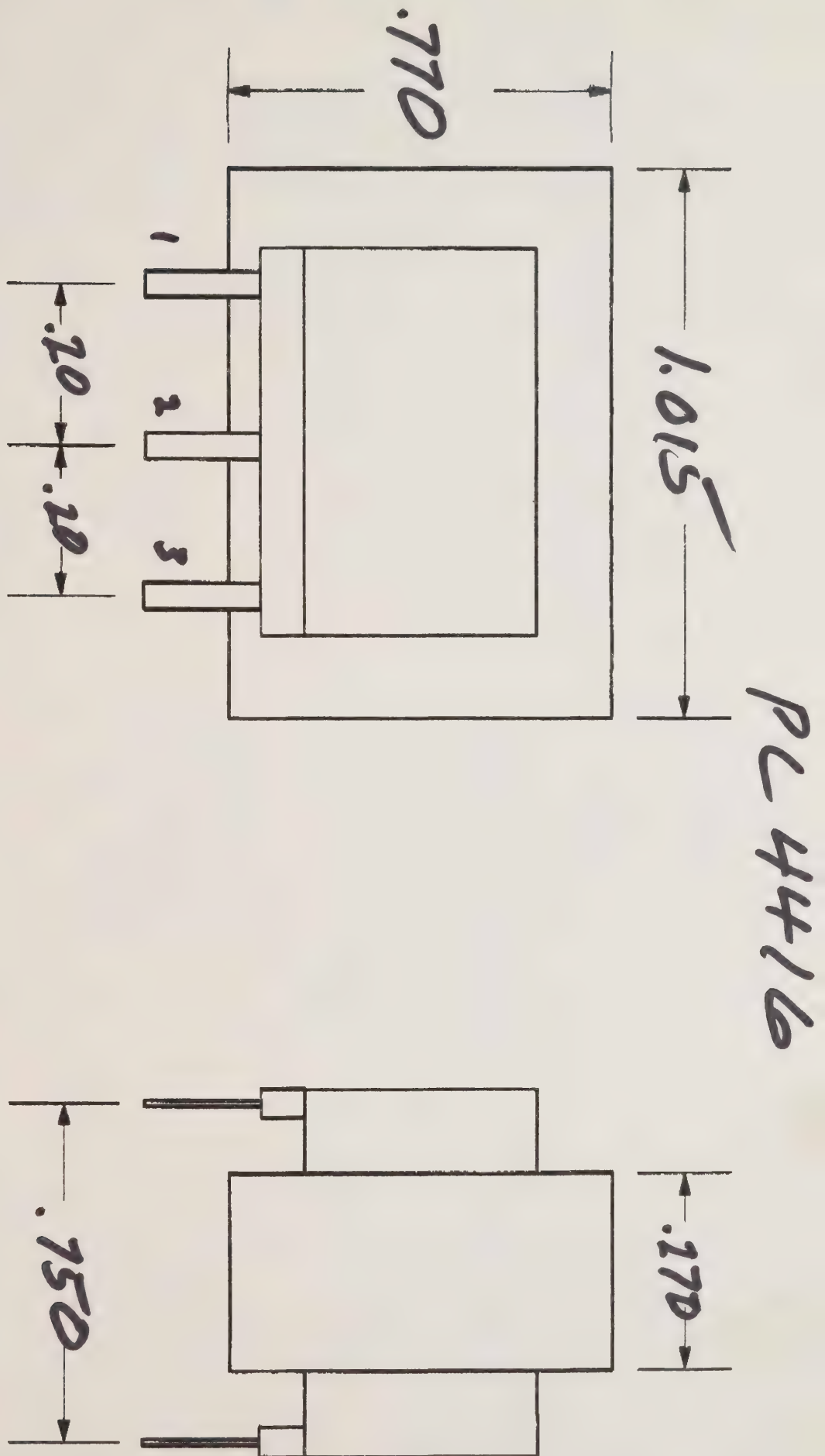
FIGURE 1 (-004, -005)

SIZE A	CAGE CODE 12436	DRAWING NO. 6010663
SCALE NONE	REV G	SHEET 24



F33657-88-C-0037





PRI DC RESISTANCE = 160 1-2

SEC DC RESISTANCE START TO FINISH =

38.0 3-4

17.5 5-6

2/14/11 29

off.

2101

2011

1000

2011

10

20

10

20

20

20

17.0

20

off.

2 2 2

off.

2011

2011

2011

2011

2011

2-1 2-2 2-3
2011 2011 2011

PC 4416

H/

115 in 1-2

TEST WINDINGS

3-4 = 30.60

5 TURNS WIRE = 402

5-6 = 30.60

.0804/T

PRIMARY 1430

SEC 380 T

SEC 380 T

PRIMARY

115V 400 Hz

138

400 Hz

100-2

.613 MA

AT 115

6.13 MA

IN SERIES AT
PRIMARY

1.30

AT 138

130 MA

MCROTAN

2.60 HZ

LEAKAGE FLUXES

2 TH

FILE

SAMPLE KORMER (RODON)

400 Hz

100 SERIES WITH PRIM. - SECONDARIES = OPEN

115V

1.60V

= 16 MA

30V

138V

4.19V

= 41.9 MA

1.03 HZ

35V

100 Hz ISOLATION POWER TRANSFORMERS

Center Tap Permits Use in Either FW Bridge or FW CT Circuitry.

Electrostatic Shielding MIL Designation: TF4R03XX

Part No.	Primary Volts	Secondary		VA Rating	Fig. A MIL Case XX
		AC Volts	RMS Amps		
M8082	26	12.6 CT 12.6	0.15 0.15	1.9 1.9	YY (Fig. B)
M8058	115	115 CT	0.017	2	YY (Fig. B)
M8083	115	115 CT	0.030	10	AJ
		12.6 CT	0.25	Total	
		12.6	0.25		
M8084	115	115 CT	0.12	14	AJ
M8059	115	115 CT	0.35	40	EB
M8085	115	115 CT	0.7	80	FA
M8060	115	115 CT	1.3	150	GA
M8061*	115	115 CT	2.6	300	JA
M8062*	115	115 CT	4.4	500	KA

*Primary 105/115/125V.

100 Hz PRINTED CIRCUIT POWER

Compact design for miniature solid state circuitry. Precision spaced molded-in terminals for power supplies, control equipment, instrument and similar applications. — Dual secondaries may be connected in series or parallel for varied voltage and current requirements. 115V Primary. See chart to right.

Part No.	Secondary Parallel	Secondary Series
PC4304	3.15V @ .1A	6.3V CT @ .05A
PC4312	12.6V @ .026A	25.2V CT @ .013A
PC4316	28V @ .012A	56V CT @ .006A
PC4320	35V @ .01A	70V CT @ .005A
PC4408	6.3V @ .60A	12.6V CT @ .30A
PC4412	12.6V @ .30A	25.2V CT @ .15A
PC4416	28V @ .14A	56V CT @ .07A
PC4424	40V @ .10A	80V CT @ .05A
PC4428	58V @ .066A	116V CT @ .033A
PC4432	115V @ .010A, 12.6V @ .150A	

† DC Output for resistive or inductive loads. Output volts based on approx. 1V drop per rectifier.
† Primary 115V only.

400 Hz TOROIDAL POWER TRANSFORMERS

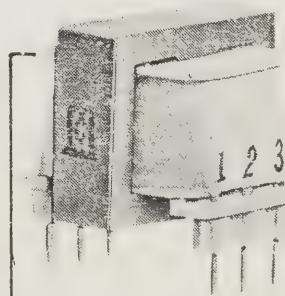
Toroidal cores permit smaller height and package and greater efficiency. Size and savings up to 30%. Epoxy molded. Printed circuit pins can be bent for chassis mounting. Low phase shift. See Fig. C for illustration.

For Applications Requiring Minimum Size and Weight.

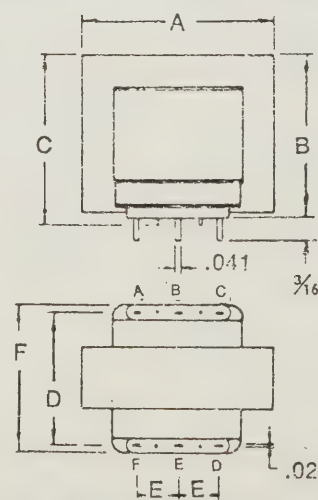
Primary 115 Volts MIL Designation: TF5S03ZZ

Part No.	Secondary		VA	Dimensions		Nominal Wt. Oz.
	AC Volts	RMS mA		OD	Height	
M8106	28 CT	320	9	1 $\frac{3}{32}$	1 $\frac{1}{8}$	2
M8107	28 CT	710	20	1 $\frac{1}{2}$	1 $\frac{1}{4}$	4
M8108	56 CT	160	9	1 $\frac{3}{32}$	1 $\frac{1}{8}$	2
M8109	56 CT	356	20	1 $\frac{1}{2}$	1 $\frac{1}{4}$	4
M8110	115 CT	78	9	1 $\frac{3}{32}$	1 $\frac{1}{8}$	2
M8111	115 CT	170	20	1 $\frac{1}{2}$	1 $\frac{1}{4}$	4

.170 Clearance Hole for #8 Screw.



PC4300/PC4400 SERIES



DIMENSIONS

Series	A	B	C	D	E	F	Wt. Oz.
PC4300	$\frac{1}{4}$	$\frac{3}{32}$	†	0.420	0.187	$\frac{1}{16}$	0.5
PC4400	1 $\frac{1}{4}$	$\frac{7}{32}$	†	0.781	0.200	$\frac{6}{64}$	1.2

† Do not have standoff.

12-5-2002
RODON #2 (704416)

PRIMARY INDUCTANCE = 14.2 H.V.

150 Ω

MICROTAN = 2.60 H.V.

158 Ω

PRIMARY CURRENT WITH 100 Ω IN SERIES

138V IN = 2.31V (23mA) 36.0V OUT

115 V = 1.016V (11.6mA) 30.0V

	1430T	375	132V
RODRA			
MICRO	150 Ω	26.7 Ω	23mA
		26.3 Ω	

MICRO	158	18.25 Ω	13.0 mA
		15.5 Ω	

12-5-2007

SECONDARY LOADED WITH 500 Ω

100W
PRIMARY CURR

SECONDARY VOLTAGE

115V _{IN} -	1.81V ✓	-	18 mA	27.65V ✓	
138V _{IN} -	2.74V ✓	-	27.4 mA	33.15V	2.17W
	(3.72V)				

MICROTRAP

115V _{IN}	1.91V		19		29.4
138V _{IN}	2.51	(3.45W)	25		35.29 2.45

$$E = IR$$

$$I = \frac{E}{R}$$

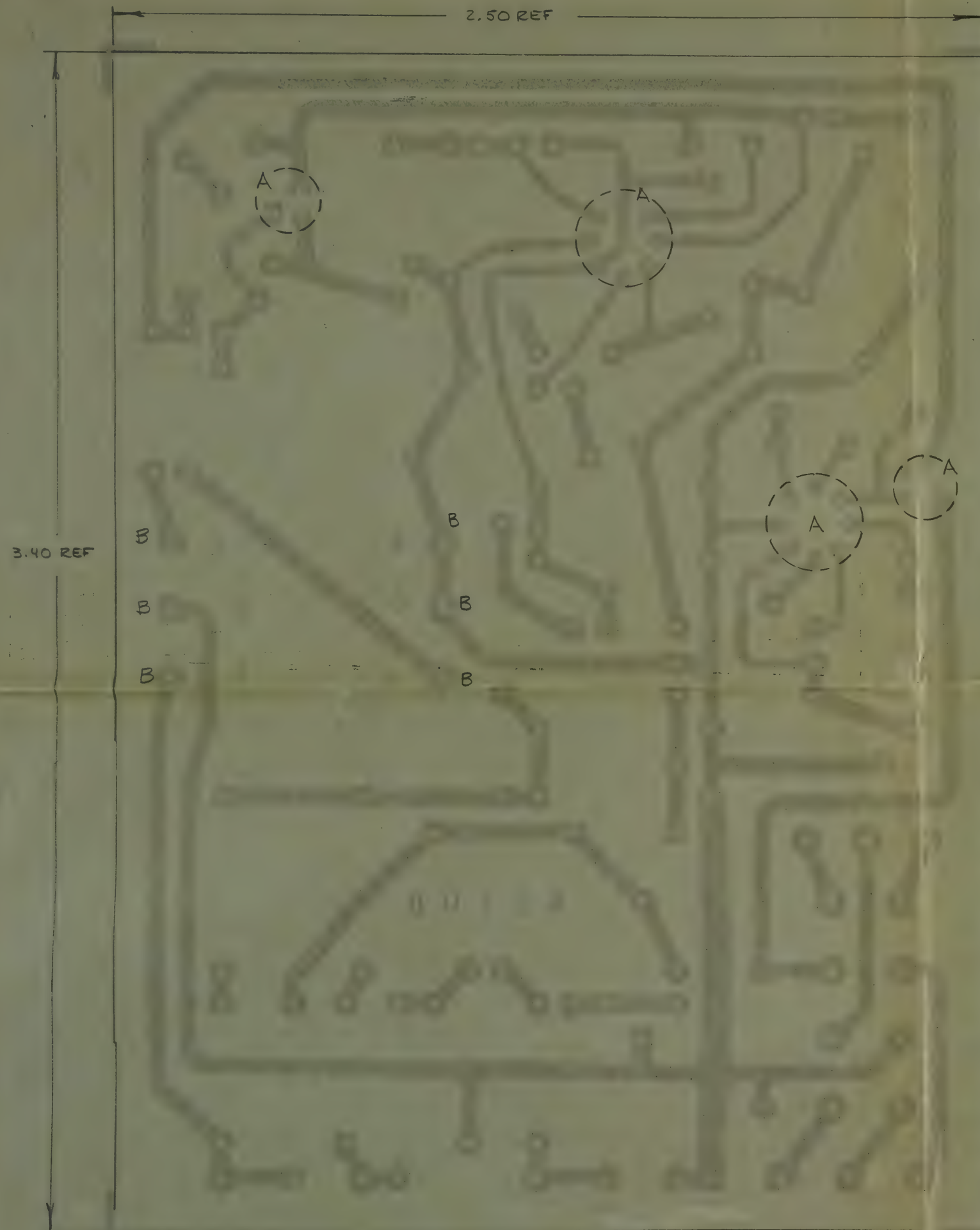
$$W = \frac{E^2}{R}$$

$$V = E$$

2.50 REF

3.40 REF





SEE "A" REVISION

- 4 DRILL ALL HOLES .035 DIA (#65) EXCEPT AS NOTED
 - A .025 DIA (#72) 22 HOLES
 - B .046 DIA (#56) 6 HOLES
 - 3 SOLDER PLATE & FUSE ALL CIRCUITRY
 - 2 MATERIAL: .032 GLASS EPOXY
2 OZ COPPER CIRCUIT
 - 1 TOP DRAWING: 101535
- NOTES

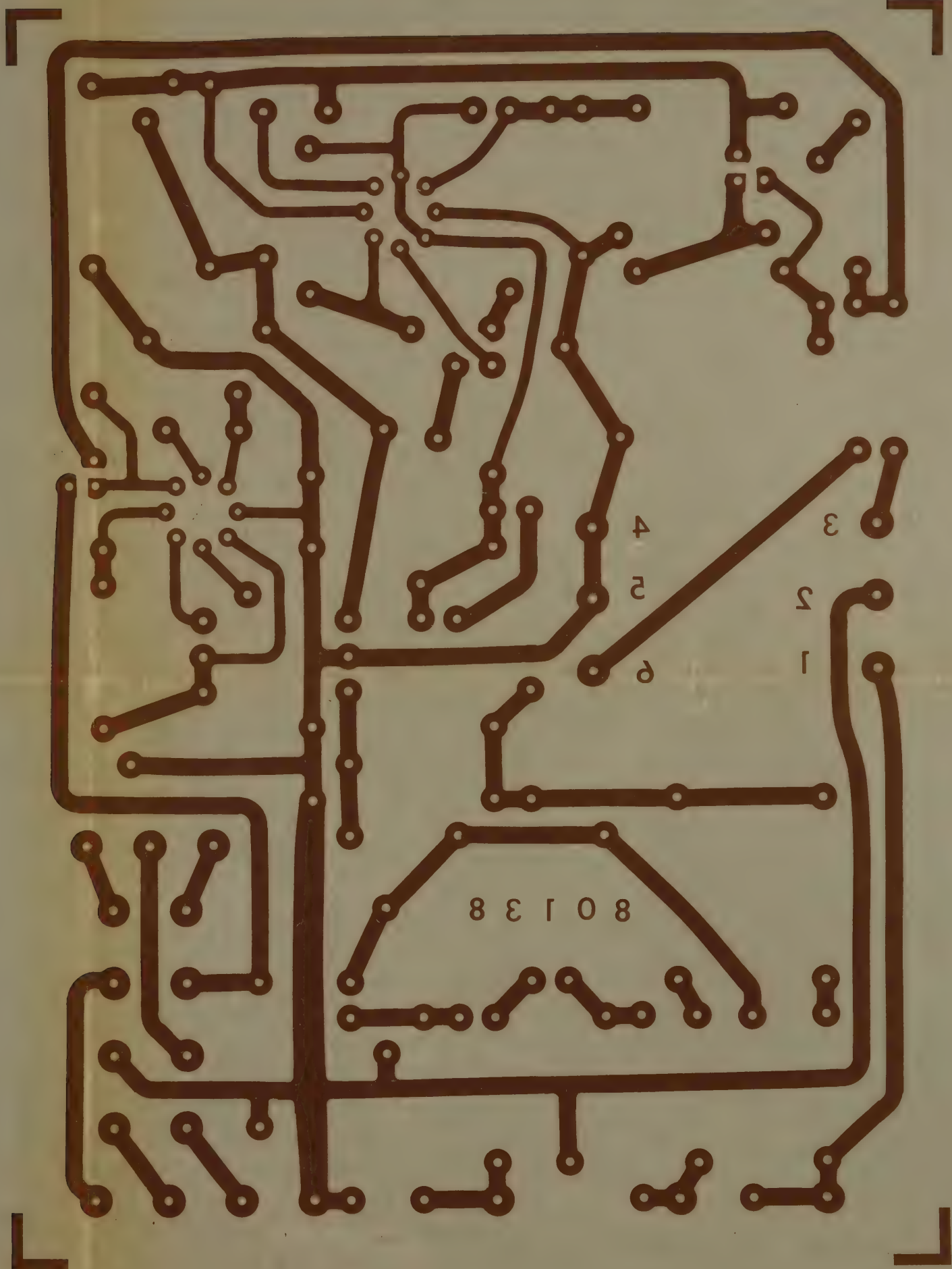
Condon 42478
A. Lucas 5/5/78

Condon 5578

P-C BOARD -
SENSING RELAY

C 80138

4:1 1 1



DO NOT SCALE DRAWING		APPROVED		APPROVED		SCALE		SHEET OF	
SURF		MACH		ANGLES $\pm 0.5^\circ$		XXX ± 0.10		XX ± 0.03	
X $\pm .1$		specified		(unless otherwise specified)		TOLERANCES		AFTER PLATING	
DIMENSIONS ARE		IN INCHES AND		DR		CHK		ELECTRONICS COMPANY INC., SANTA ANA, CALIF.	
13279		CODE IDENT NO.		SIZE		REV		PARKO	

20138

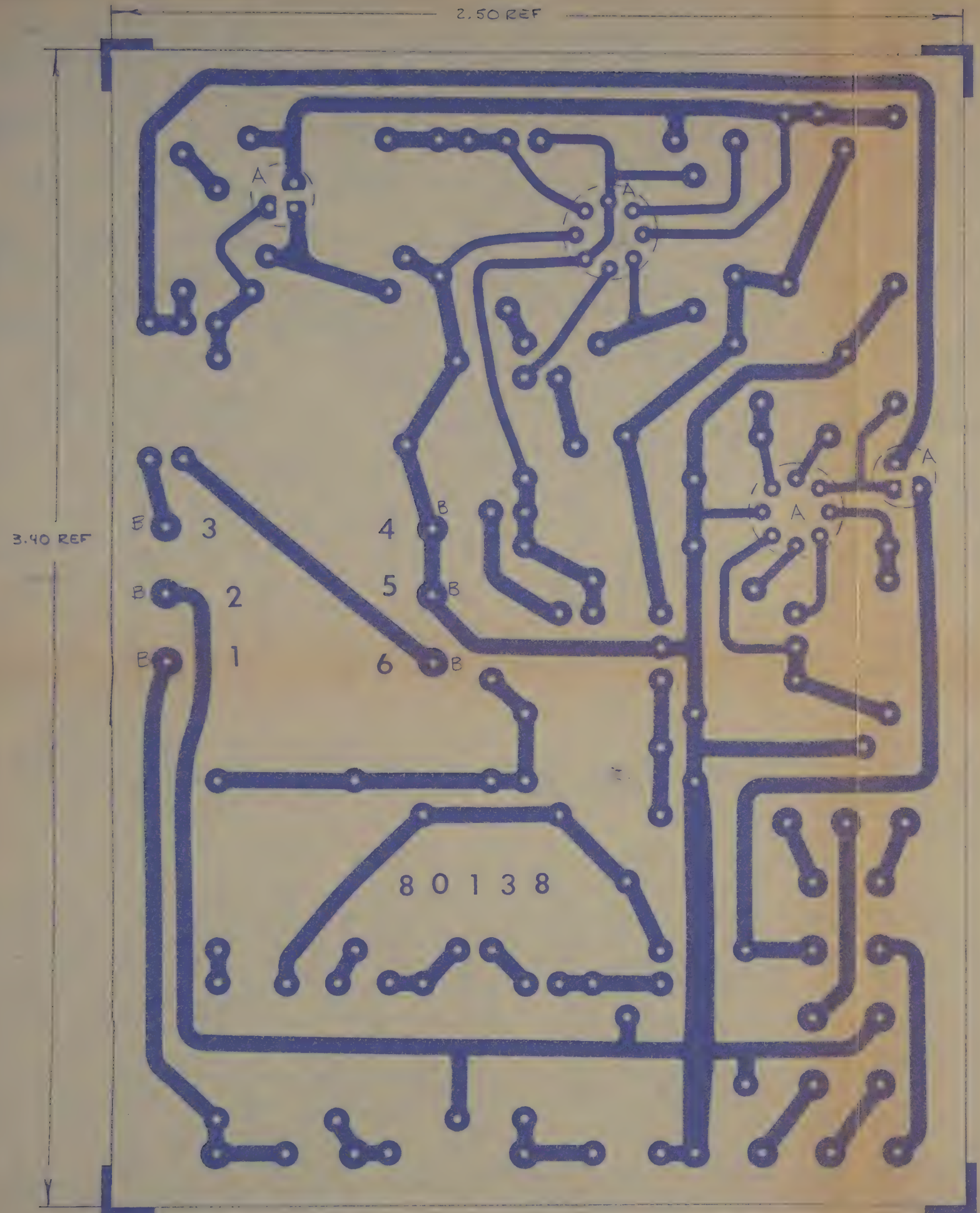
D-C BOARD, SENSING RELAY

EM



20138
D-C BOARD, SENSING RELAY
EM

80138



SEE 80138A

- 4 DRILL ALL HOLES .035 DIA (#65) EXCEPT AS NOTED
 A .025 DIA (#72) 22 HOLES
 B .046 DIA (#56) 6 HOLES
 - 3 SOLDER PLATE & FUSE ALL CIRCUITRY
 - 2 MATERIAL: .032 GLASS EPOXY
 2 OZ COPPER CIRCUIT
 - 1 TOP DRAWING: 101535
- NOTES

DIMENSIONS ARE IN INCHES AND AFTER PLATING TOLERANCES (unless otherwise specified) .X ±.1 .XX ±.03 .XXX ±.010 ANGLES ±0.5° MACH SURF ✓	DR <i>David D. [illegible]</i> 4/24/78	Parko ELECTRONICS COMPANY INC., SANTA ANA, CALIF.	P-C BOARD - SENSING RELAY		CODE IDENT NO. 13979	SIZE 2	REV 80138
	CHK <i>[illegible]</i> 5/5/78						
	DSGN						
	PROJ						
REL <i>Carroll [illegible]</i> 5/5/78	APPROVED	DO NOT SCALE DRAWING	SCALE 4:1	SHEET 1 OF 1			

- 4 DRILL ALL HOLES .035 DIA (#65) EXCEPT AS NOTED
 - A .025 DIA (#72) 22 HOLES
 - B .046 DIA (#56) 6 HOLES
- 3 SOLDER PLATE & FUSE ALL CIRCUITRY
- 2 MATERIAL: .032 GLASS EPOXY
2 OZ COPPER CIRCUIT
- 1 TOP DRAWING: 101535

NOTES

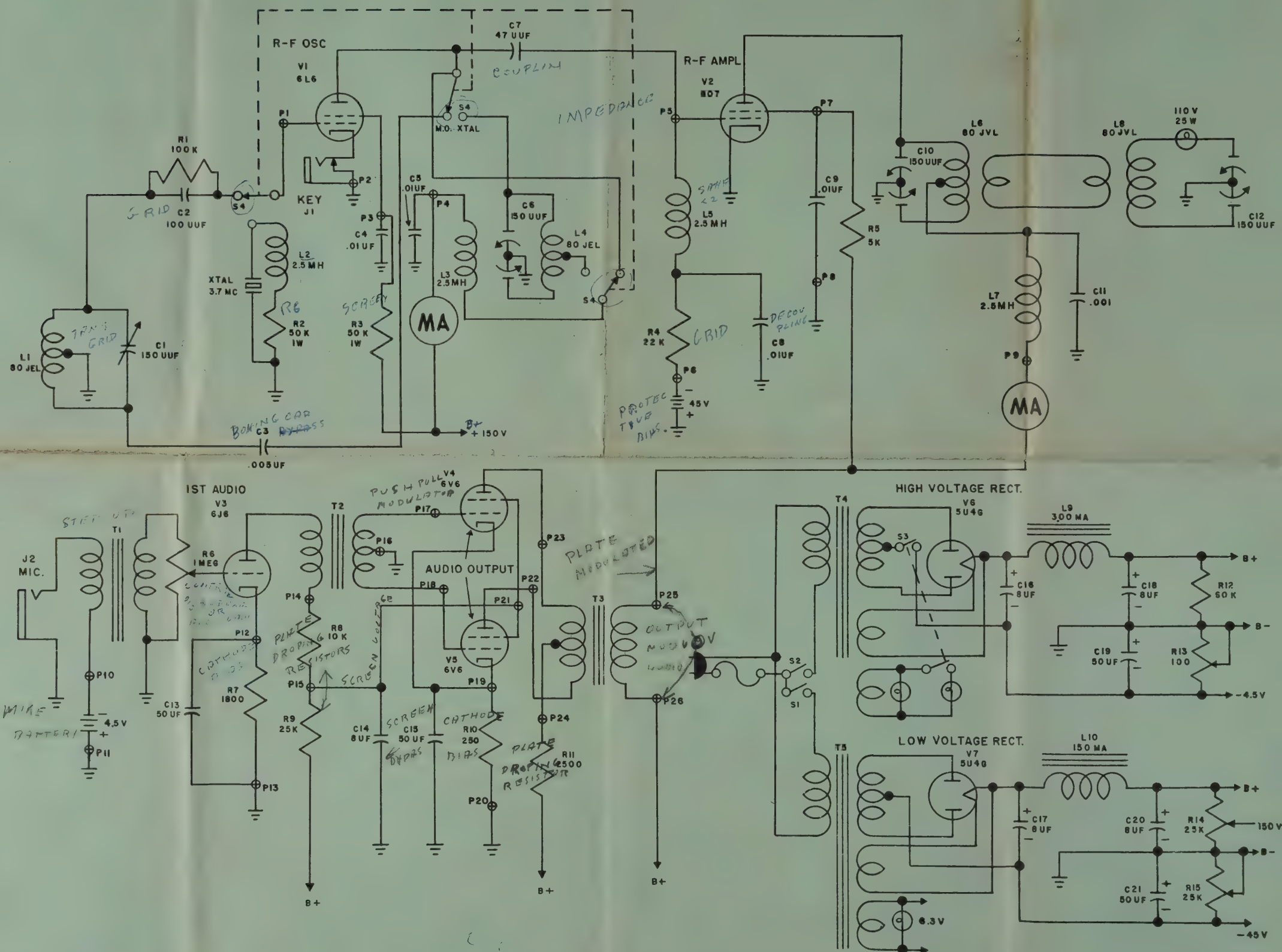
DIMENSIONS ARE IN INCHES AND AFTER PLATING		DR <i>David Smith</i> 12/29/79	
TOLERANCES (unless otherwise specified) .X ±.1 .XX ±.03 .XXX ±.010 ANGLES ±0.5° MACH SURF		CHK <i>David Smith</i> 5/5/78	
		DSGN [blank]	
		PROJ [blank]	
		REV <i>David Smith</i> 5/5/78	
APPROVED _____		APPROVED _____	
DO NOT SCALE DRAWING		SCALE 4:1	
CODE IDENT NO. 13979		SIZE C	
P-C BOARD - SENSING RELAY		REV 80138	
SHEET 1 OF 1			

Pariko
ELECTRONICS COMPANY INC., SANTA ANA, CALIF.

5-2 S.F. 075 - HARTLEY SHUNT OR XTAL OSCILL

L-2 - KEE XTAL R.F. ON GRID OUT OF TUBE

THE SOUTHEASTERN SIGNAL SCHOOL Camp Gordon, Georgia

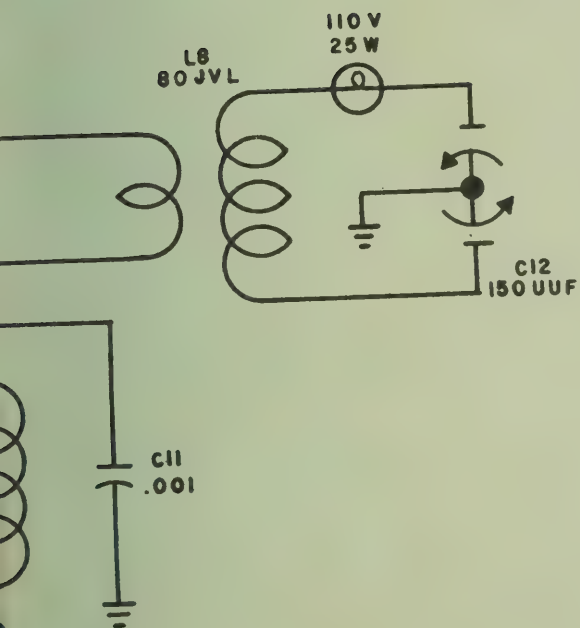


11-E-12/6-L3-LP1-D

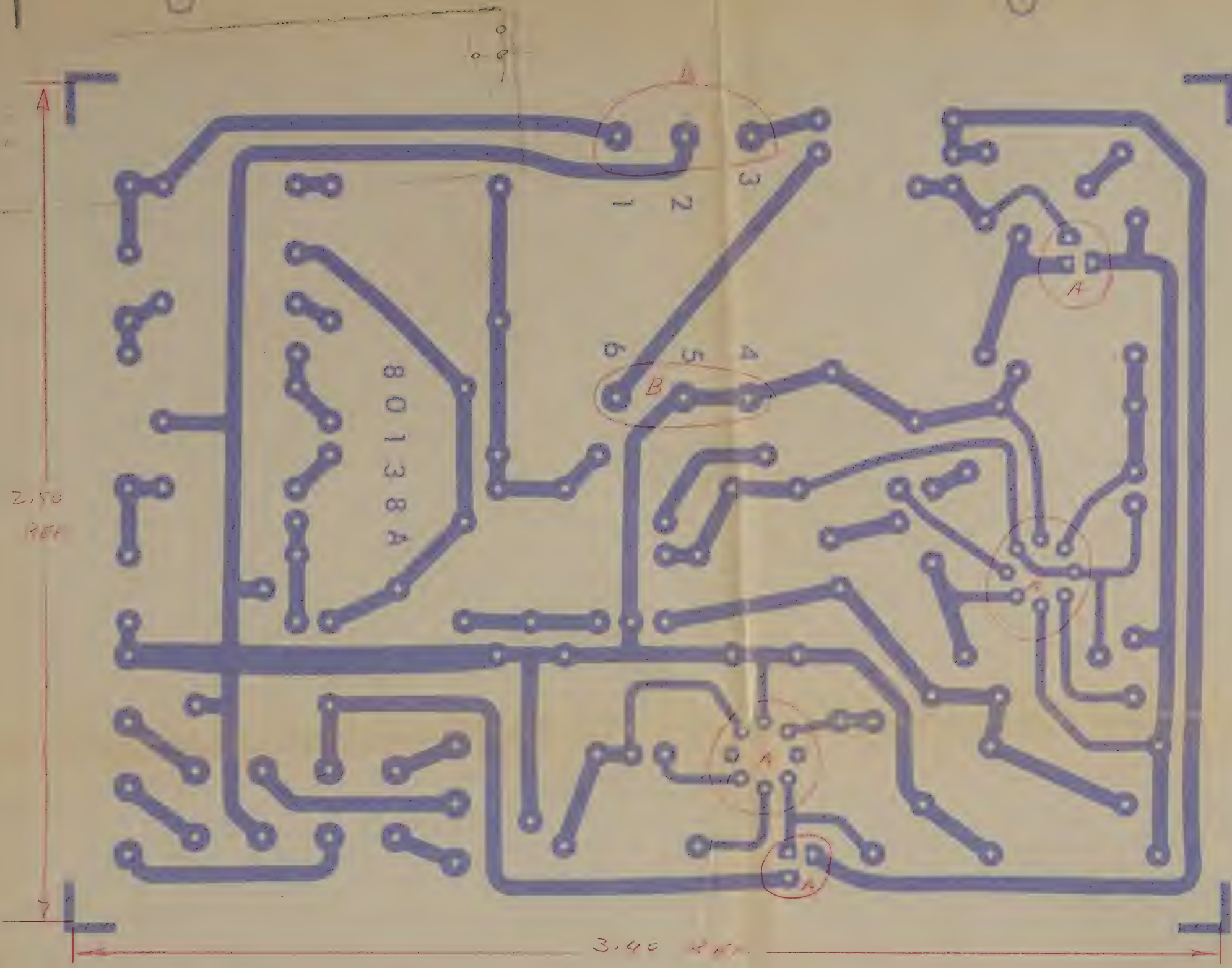
A-M Radio Transmitter Demonstrator

July 1954

Army Ft. McPherson Ga 1181/54



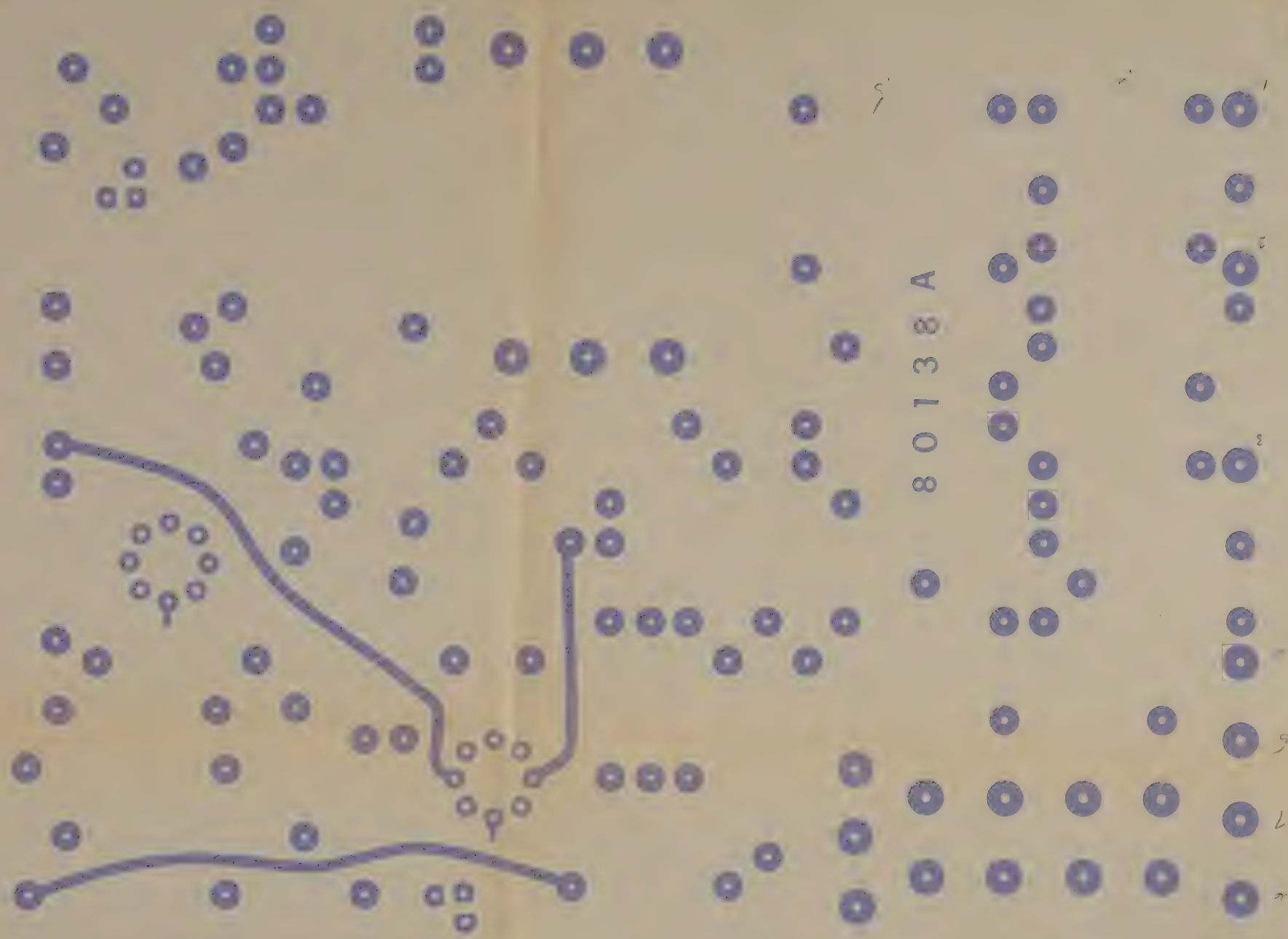
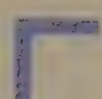
A



NOTES:

1. TOP DRAWING: 101535
2. MATERIAL: .032" CLASS EPOXY
2 OZ. COPPER CIRCUIT
3. SOLDER PLATE AND FUSE ALL CIRCUITRY
4. ~~DRILL ALL HOLES .035" DIA (REF)~~ ^{after plating} ~~DRILL ALL HOLES .035" DIA (REF)~~
5. "A" HOLES .025" DIA. (#72) - 22 HOLES
6. "B" HOLES .035" DIA. (#50) - 6 HOLES
5. HOLE DIM. AFTER PLATING THRU

80138A



80138A

Parko

ELECTRONICS COMPANY, INC.

PARKO STANDARDS DRAWING NUMBER LIST

Drawing Number	Date drwn.	Pre. Rel.	Rel. Date	Top Drawing	Description
90501				100500	Gun Cleared Logic Module
90502				100287	DJA Time Delay Unit
				100235	
90503				100579	Voltage Comparator
90504				100504	Circuit Breaker
90505				100635	Time Delay Relay
90506				100647	DC to DC Converter
90507				100699	Bias Network
90508				100464	DJC Time Delay Module
90509				100508-1	DJC-ADC Fig 1 Time Delay Module
90510				100508-2	DJC-ADJ Fig 2 Time Delay Module
90511-1				100675	Voltage Monitor VTF 100 Series
90511-2				100679	Time Delay Relay VTF 200 Series
90511-3				100683	Freq. Monitor VTF 300 Series

Parko

ELECTRONICS COMPANY, INC.

PARKO STANDARDS DRAWING NUMBER LIST

Drawing Number	Date drwn.	Rev. Rel.	Rel. Date	Top Drawing	Description
90525				100846	Sensing Relay Over-Under Volt.
90526				100838	220K HZ TCVC0
90527				100742	Sensing Relay Over-Under Volt.
90528				100854	Sensing Relay Over-Under Volt.
90529				100659	Dual Output, Time Delay Relay
90530				100859	Time Delay Relay
90531 SHC N ₁	7-70	8-70	4-76	100905	DJP Time Delay Module
SHC	4-76				
90532A				100906	Frequency Monitor 60HZ
90533				100916	Dual Frequency Monitor
90534				100723	Sensing Relay - Over-Under Voltage & Frequency
90535-1 A	9-70	11-70	6-71	100750	Current Sensing Relay
90535-2 A	"	"		100750	Current Sensing Relay
90536-1				100623	Dual Voltage, AC/DC & Freq. Detector
90536-2				100623	Dual Voltage, AC/DC & Freq. Detector

Item	Description	Quantity	Unit	Price	Total
1
2
3
4
5
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Parko

ELECTRONICS COMPANY, INC.

PARKO STANDARDS DRAWING NUMBER LIST

Drawing Number	Date drwn.	Pre. Rel.	Rel. Date	Top Drawing	Description
90512				100700	Time Delay Relay
90513				100734	Time Delay Unit
90514				100784	BJC-ADJ Time Delay Relay
90515				100746	Sensor Relay Over-Under Volt.
90516				100387	Time Delay Relay
90517				100772	Circuit Breaker
90518				100776	Voltage Frequency Monitor
90519				100667	Fault Sensor
90520				100540	Time Delay Module
90521				100754	DC-AC Inverter
90522				100789	Circuit Breaker
90523				100749	DC-DC Converter
90524				100709	Sensing Relay Over-Under Volt.

PARKO P/N

REV

NAME _____

250

211-212

DATE _____

CUST P/N & NAME

INT BY

DATE WANTED 3-16-57

DRAWINGS REQUIRED:

☒ Top ☐ B/M ☐ Sch ☐ Assy ☒ Enc ☐ P-C Board ☒ Marking ☐ ☐ ☐

457056K. 906F/63W-HP-10A

CHECK & RELEAS

[illegible]

101535

Mouser

100T Tantalum

74-10AD 336X9050C2

33/50V

Vishay/Sprague

16.46 @ 10 pcs

14.61 @ 50 pcs

15.95 20 pcs

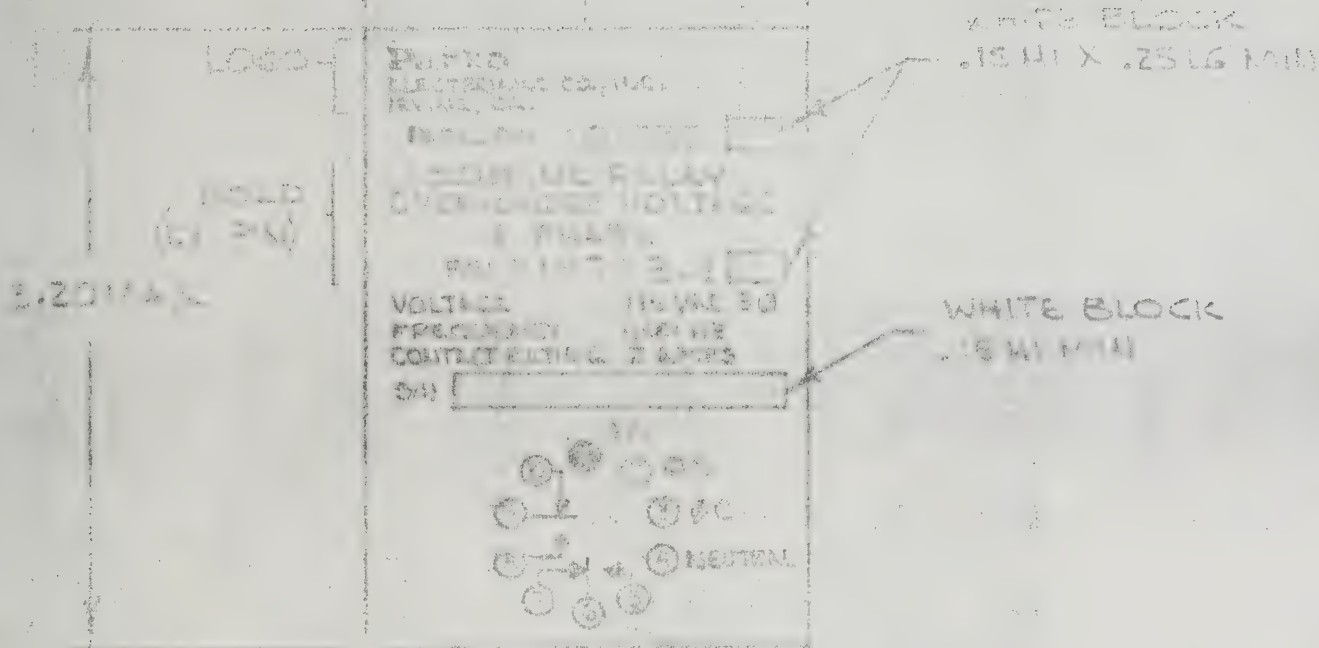
Newark

109D 336X9050C2

19.04 @ 10 pcs

SAVE

for 100T Tantalum
part the 33/50V
8 H 26 05



1 TOP DRAWING: 101535

2 RIS OF 11 VERTICAL STRIPS

3 MARKING: WHITE PRINTING ON DULL BLACK
PER MIL-M-13231A, AMEND 2, GRP1

4 WATER MARK: ~~PARCO ELECTRONICS CO., INC. IRVINE, CALIF.~~

FLEXCON #41104, 4 MIL WHITE VINYL PER MIL-M-43719B, AMEND 1, TYPE 1,
CLASS I

DIMENSIONS ARE
IN INCHES AND
AFTER PLATING

TOLERANCES
(unless otherwise
specified)

X ± .1
XX ± .03
XXX ± .010
ANGLES ± .5°

MACH
SURF: ✓

DR *Chen* 6/14/77
CHK *Chen* 6/14/77
DSGN
PROJ
REV *Chen* 6/14/77

APPROVED

APPROVED

DO NOT SCALE DRAWING

Parco
ELECTRONICS COMPANY INC., SAN JUAN, CALIF.

LABEL
SENSING DELAY

CODE IDENT NO.

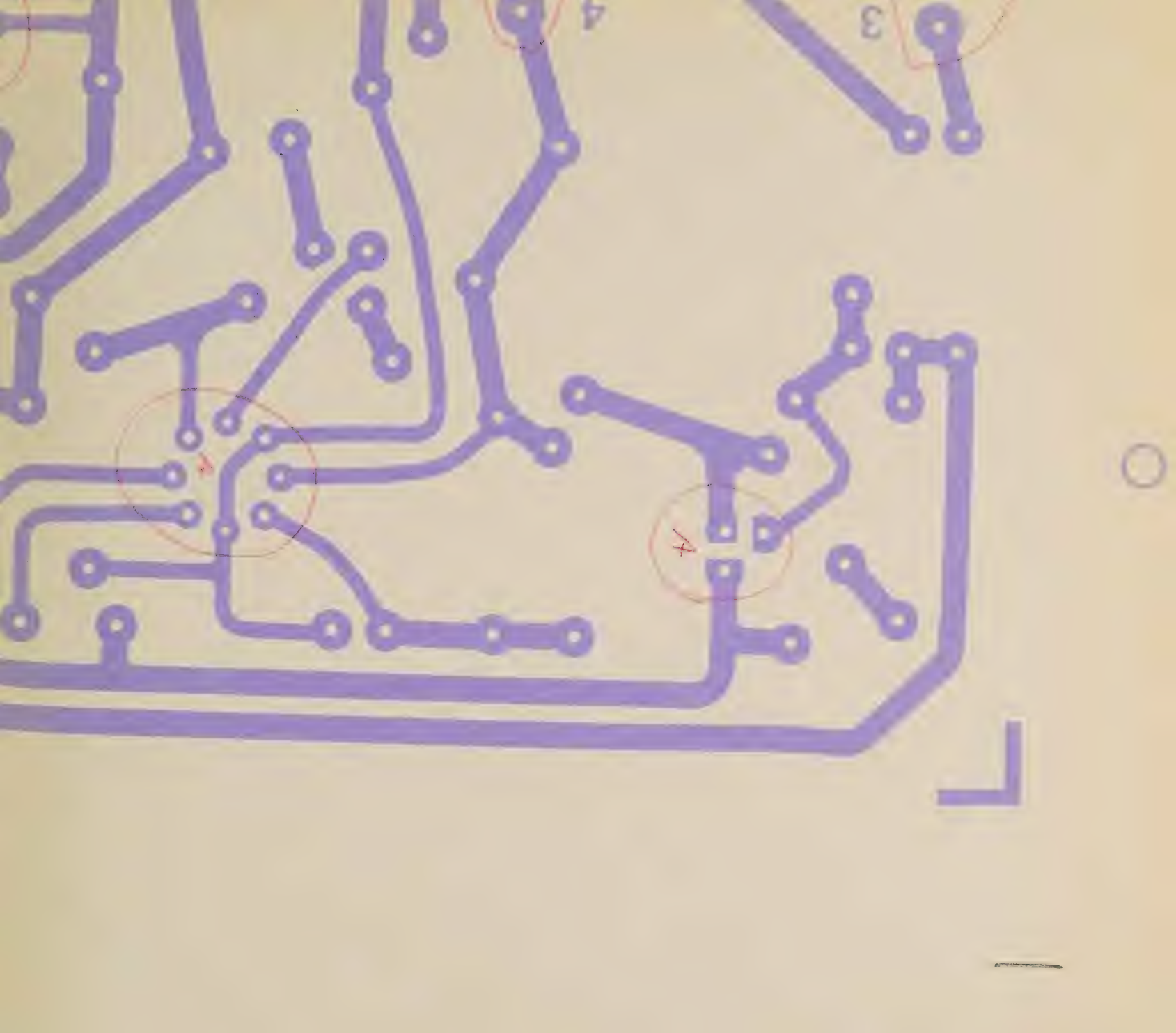
13979

REV

A

130615

SHEET 1 OF 1



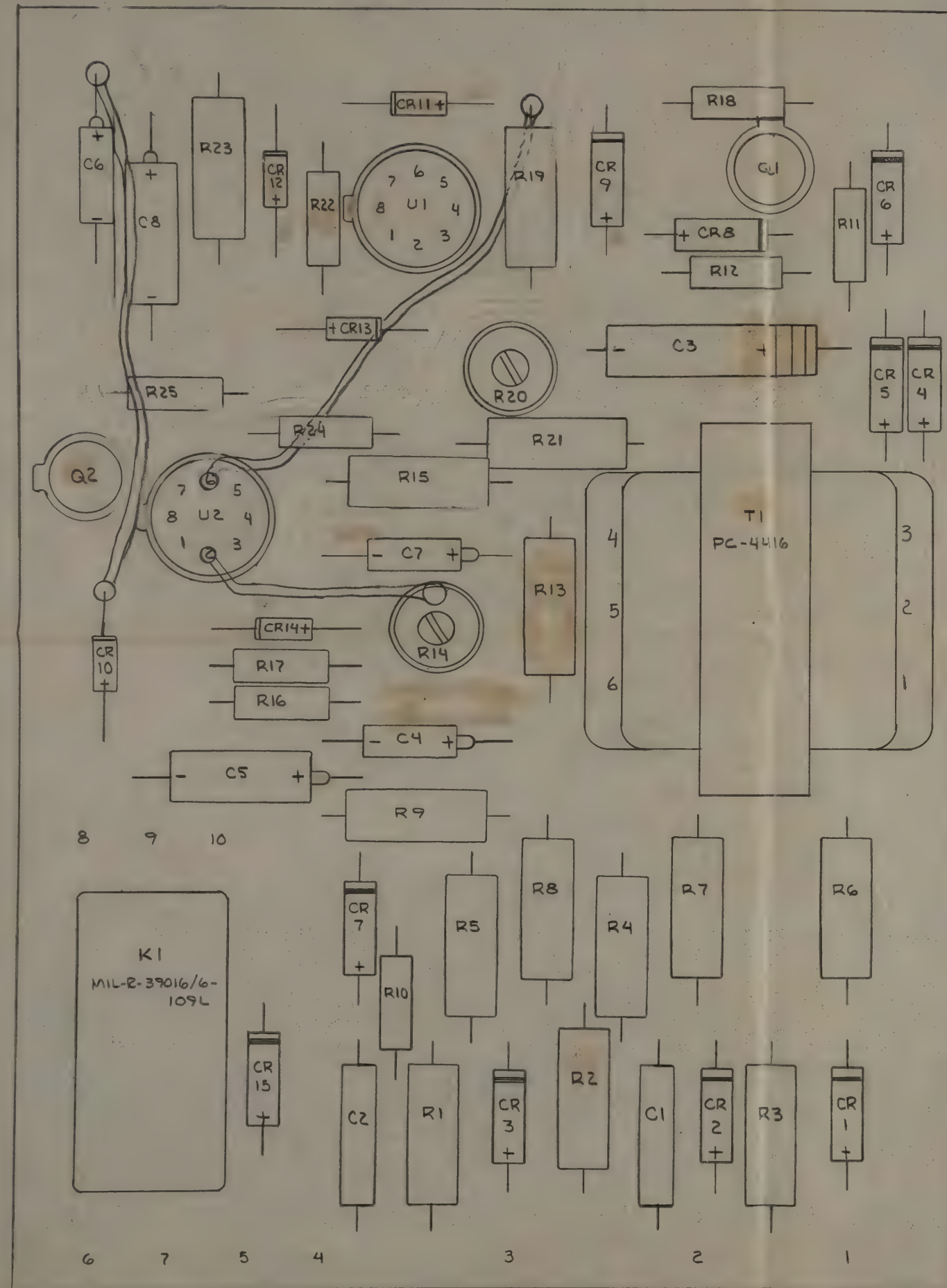
REFDES P/N/VALUE
 C1 .01UF/400V
 C2 .01UF/400V
 C3 30UF/50V
 C4 1.8UF/20V
 C5 6.8UF/35V
 C6 1UF/35V
 C7 2.2UF/20V
 C8 6.8UF/35V

CR1 1N4005
 CR2 1N4005
 CR3 1N4005
 CR4 1N4002
 CR5 1N4002
 CR6 1N4002
 CR7 1N4002
 CR8 1N970B
 CR9 1N821A
 CR10 1N4148
 CR11
 CR12
 CR13
 CR14 1N4148
 CR15 1N4002

Q1 2N2222A
 Q2 2N2222A
 U1 MC1558G
 U2 MC1558G

R1 75K/RN60
 R2 23.7K
 R3 464K
 R4 464K
 R5 464K
 R6 100K
 R7 100K
 R8 100K
 R9 12.1K/RN60
 R10 47K/1/4W
 R11 100Ω/1/4W
 R12 820Ω/1/4W
 R13 5.62K/RN60
 R14 5K POT
 R15 8.25K/RN60
 R16 10K/1/4W
 R17 100K/1/4W
 R18 2.7K/1/4W
 R19 2.15K/RN60
 R20 1K POT
 R21 4.22K/RN60

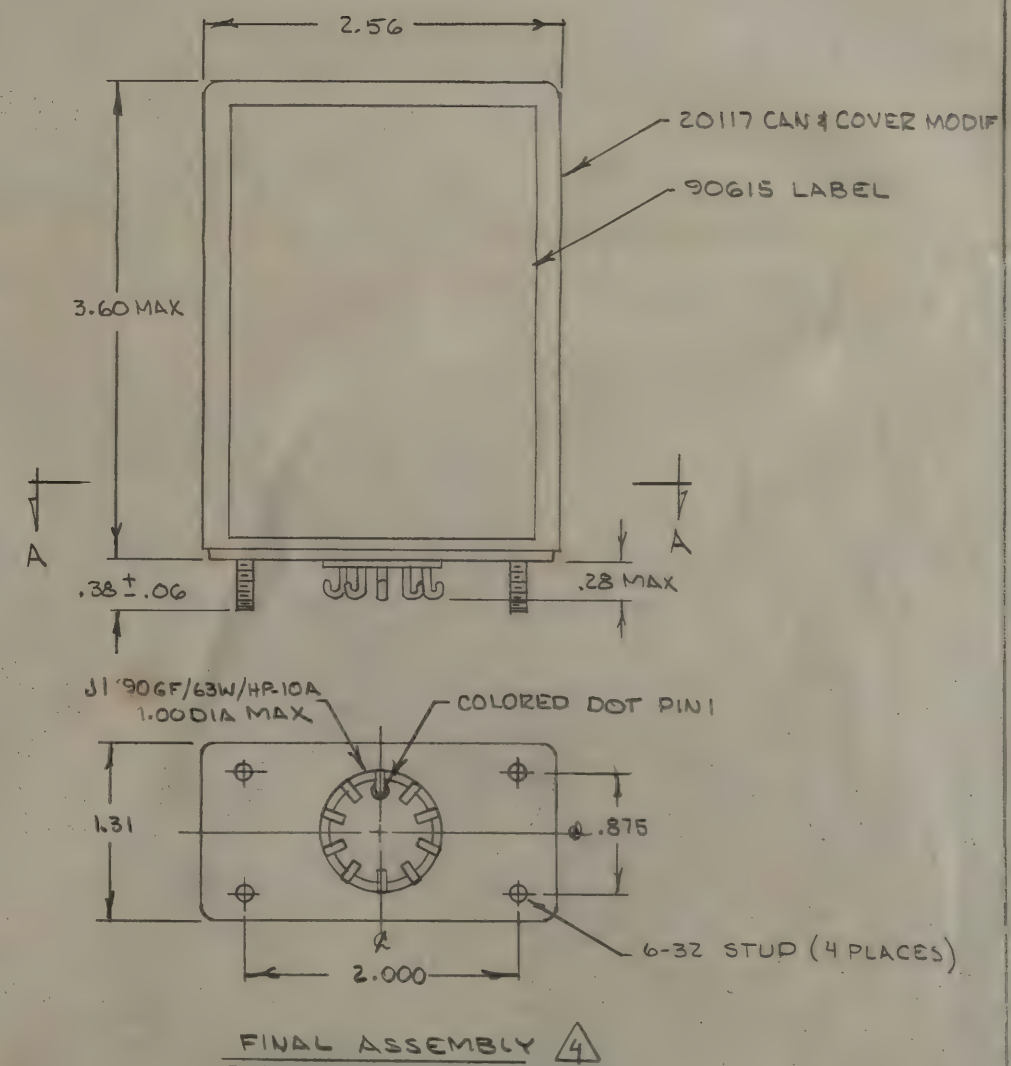
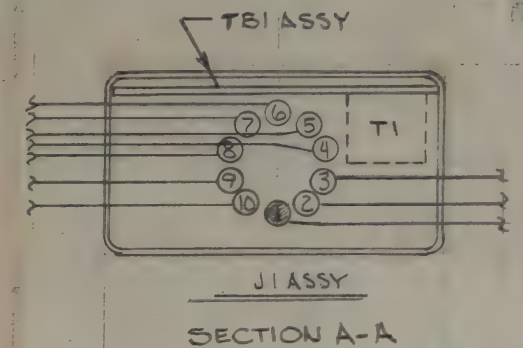
R22 1.5M/1/4W
 R23 348K/RN60
 R24 10K/1/4W
 R25 330K/1/4W



P.C BOARD 80138A

4 POTTING COMPOUND: 85GMS SILICON PER
 3 SCHEMATIC: 101536 (REF.) ES160-1
 2 PARTS LIST: PL101535 (REF.)
 1 TOP DRAWING: 101535 (REF.)
 NOTES:

WIRE No 22 AWG STRANDED			
FROM	TO	COLOR	LENGTH
J1-1	TB1-1	BROWN	2.1
2	2	RED	1.5
3	3	ORANGE	1.3
4	4	YELLOW	1.4
5	5	GREEN	1.5
6	6	BLUE	1.7
7	7	VIOLET	1.3
8	8	GRAY	2.7
9	9	WHITE	2.6
J1-10	TB1-10	BLACK	2.5



4-25-78
 5/5/78

5-5-78

5-5-78

ASSEMBLY-
 SENSING RELAY

C 101537

4:11:11

[illegible]

286 MACH 1 VME2+02 XXX+010 XX+03 X+1 (b) (5) (c) (1) (d) (1) (e) (1) (f) (1) (g) (1) (h) (1) (i) (1) (j) (1) (k) (1) (l) (1) (m) (1) (n) (1) (o) (1) (p) (1) (q) (1) (r) (1) (s) (1) (t) (1) (u) (1) (v) (1) (w) (1) (x) (1) (y) (1) (z) (1) (aa) (1) (ab) (1) (ac) (1) (ad) (1) (ae) (1) (af) (1) (ag) (1) (ah) (1) (ai) (1) (aj) (1) (ak) (1) (al) (1) (am) (1) (an) (1) (ao) (1) (ap) (1) (aq) (1) (ar) (1) (as) (1) (at) (1) (au) (1) (av) (1) (aw) (1) (ax) (1) (ay) (1) (az) (1) (ba) (1) (bb) (1) (bc) (1) (bd) (1) (be) (1) (bf) (1) (bg) (1) (bh) (1) (bi) (1) (bj) (1) (bk) (1) (bl) (1) (bm) (1) (bn) (1) (bo) (1) (bp) (1) (bq) (1) (br) (1) (bs) (1) (bt) (1) (bu) (1) (bv) (1) (bv) (1) (bw) (1) (bx) (1) (by) (1) (bz) (1) (ca) (1) (cb) (1) (cc) (1) (cd) (1) (ce) (1) (cf) (1) (cg) (1) (ch) (1) (ci) (1) (cj) (1) (ck) (1) (cl) (1) (cm) (1) (cn) (1) (co) (1) (cp) (1) (cq) (1) (cr) (1) (cs) (1) (ct) (1) (cu) (1) (cv) (1) (cw) (1) (cx) (1) (cy) (1) (cz) (1) (da) (1) (db) (1) (dc) (1) (dd) (1) (de) (1) (df) (1) (dg) (1) (dh) (1) (di) (1) (dj) (1) (dk) (1) (dl) (1) (dm) (1) (dn) (1) (do) (1) (dp) (1) (dq) (1) (dr) (1) (ds) (1) (dt) (1) (du) (1) (dv) (1) (dv) (1) (dw) (1) (dx) (1) (dy) (1) (dz) (1) (ea) (1) (eb) (1) (ec) (1) (ed) (1) (ee) (1) (ef) (1) (eg) (1) (eh) (1) (ei) (1) (ej) (1) (ek) (1) (el) (1) (em) (1) (en) (1) (eo) (1) (ep) (1) (eq) (1) (er) (1) (es) (1) (et) (1) (eu) (1) (ev) (1) (ev) (1) (ew) (1) (ex) (1) (ey) (1) (ez) (1) (fa) (1) (fb) (1) (fc) (1) (fd) (1) (fe) (1) (ff) (1) (fg) (1) (fh) (1) (fi) (1) (fj) (1) (fk) (1) (fl) (1) (fm) (1) (fn) (1) (fo) (1) (fp) (1) (fq) (1) (fr) (1) (fs) (1) (ft) (1) (fu) (1) (fv) (1) (fv) (1) (fw) (1) (fx) (1) (fy) (1) (fz) (1) (ga) (1) (gb) (1) (gc) (1) (gd) (1) (ge) (1) (gf) (1) (gg) (1) (gh) (1) (gi) (1) (gj) (1) (gk) (1) (gl) (1) (gm) (1) (gn) (1) (go) (1) (gp) (1) (gq) (1) (gr) (1) (gs) (1) (gt) (1) (gu) (1) (gv) (1) (gv) (1) (gw) (1) (gx) (1) (gy) (1) (gz) (1) (ha) (1) (hb) (1) (hc) (1) (hd) (1) (he) (1) (hf) (1) (hg) (1) (hh) (1) (hi) (1) (hj) (1) (hk) (1) (hl) (1) (hm) (1) (hn) (1) (ho) (1) (hp) (1) (hq) (1) (hr) (1) (hs) (1) (ht) (1) (hu) (1) (hv) (1) (hv) (1) (hw) (1) (hx) (1) (hy) (1) (hz) (1) (ia) (1) (ib) (1) (ic) (1) (id) (1) (ie) (1) (if) (1) (ig) (1) (ih) (1) (ii) (1) (ij) (1) (ik) (1) (il) (1) (im) (1) (in) (1) (io) (1) (ip) (1) (iq) (1) (ir) (1) (is) (1) (it) (1) (iu) (1) (iv) (1) (iv) (1) (iw) (1) (ix) (1) (iy) (1) (iz) (1) (ja) (1) (jb) (1) (jc) (1) (jd) (1) (je) (1) (jf) (1) (jg) (1) (jh) (1) (ji) (1) (jj) (1) (jk) (1) (jl) (1) (jm) (1) (jn) (1) (jo) (1) (jp) (1) (jq) (1) (jr) (1) (js) (1) (jt) (1) (ju) (1) (jv) (1) (jv) (1) (jw) (1) (jx) (1) (jy) (1) (jz) (1) (ka) (1) (kb) (1) (kc) (1) (kd) (1) (ke) (1) (kf) (1) (kg) (1) (kh) (1) (ki) (1) (kj) (1) (kk) (1) (kl) (1) (km) (1) (kn) (1) (ko) (1) (kp) (1) (kq) (1) (kr) (1) (ks) (1) (kt) (1) (ku) (1) (kv) (1) (kv) (1) (kw) (1) (kx) (1) (ky) (1) (kz) (1) (la) (1) (lb) (1) (lc) (1) (ld) (1) (le) (1) (lf) (1) (lg) (1) (lh) (1) (li) (1) (lj) (1) (lk) (1) (ll) (1) (lm) (1) (ln) (1) (lo) (1) (lp) (1) (lq) (1) (lr) (1) (ls) (1) (lt) (1) (lu) (1) (lv) (1) (lv) (1) (lw) (1) (lx) (1) (ly) (1) (lz) (1) (ma) (1) (mb) (1) (mc) (1) (md) (1) (me) (1) (mf) (1) (mg) (1) (mh) (1) (mi) (1) (mj) (1) (mk) (1) (ml) (1) (mm) (1) (mn) (1) (mo) (1) (mp) (1) (mq) (1) (mr) (1) (ms) (1) (mt) (1) (mu) (1) (mv) (1) (mv) (1) (mw) (1) (mx) (1) (my) (1) (mz) (1) (na) (1) (nb) (1) (nc) (1) (nd) (1) (ne) (1) (nf) (1) (ng) (1) (nh) (1) (ni) (1) (nj) (1) (nk) (1) (nl) (1) (nm) (1) (nn) (1) (no) (1) (np) (1) (nq) (1) (nr) (1) (ns) (1) (nt) (1) (nu) (1) (nv) (1) (nv) (1) (nw) (1) (nx) (1) (ny) (1) (nz) (1)

ELECTRONICS CO., INC.

1 - May be reworked 2 - Cannot be reworked 3 - Now shop practice
4 - Record change 5 - Parts made OK

REV	SHT	DESCRIPTION	DISP	DATE
NC1	-	RIA WAS 1.47K	3	6-78
A	-	C4 - WAS 2.2UF	3	9-82

0000

SHIT

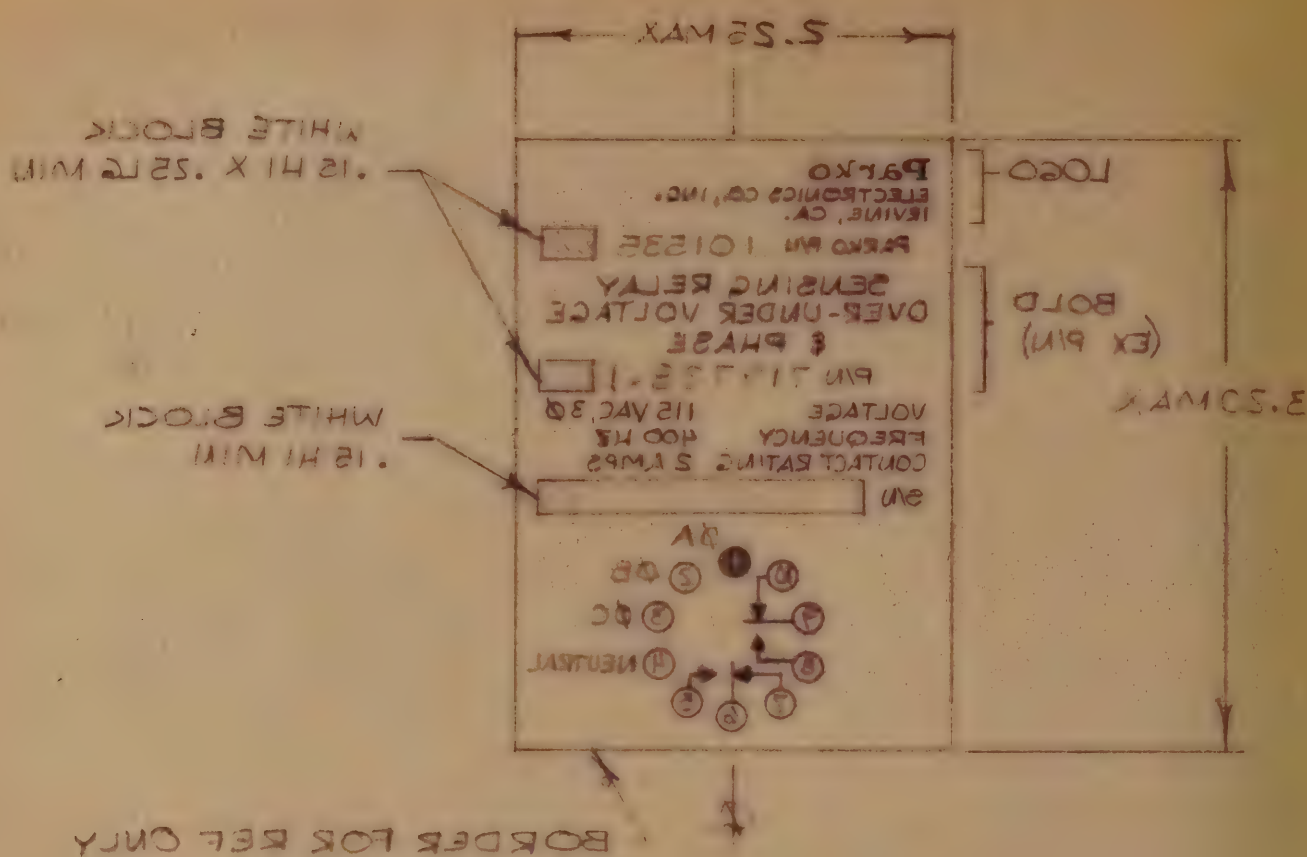
TITL E

8

P/N

[illegible]

00012 LABEL - SENSING RELAY



- NOTES
- 1 MATERIAL: SCOTCHGARD # 3250 PER MIL-F-8739A, MIL-D-8834B, MIL-D-8835A & MIL-R-6902
 - 2 MARKING: WHITE PRINTING ON DULL BLACK
 - 3 KISS CUT IN CERTAIN STEPS
 - 4 TOP DRAWING: 101535

Parko ELECTRONICS COMPANY INC., SANTA ANA, CALIF.		DIMENSIONS ARE IN INCHES AND AFTER PLATING		DR	6-10-77
		TOLERANCES (unless otherwise specified)		CHK	6-10-77
LABEL - SENSING RELAY		X. $\pm .1$ XX. $\pm .03$ XXX. $\pm .010$ ANGLES $\pm .02^\circ$		DSCN	
		MACH SURF		PROT	
CODE IDENT NO. 133279 SIZE A		APPROVED		REL	6-10-77
		APPROVED			
SHEET 1 OF 1		DO NOT SCALE DRAWING			

REVISIONS

1-May be reworked 2-Cannot be reworked 3-Now shop practice
4-Record change 5-Parts made okay

REV	SHT	DESCRIPTION	DISP	DATE	APVD
NC ₁	3	R19 was: 1.47K	3	6/78	C.A.

DATE _____ SHOP ORDER NO. _____ QTY. _____
 LOT _____
 CUSTOMER P/N 710728-1 S/N _____ thru _____
 CUSTOMER AND PURCHASE ORDER _____ HAC/ _____

- 3 ASSEMBLY: 101537
- 2 SCHEMATIC: 101536
- 1 TOP DRAWING: 101535

NOTES:

DIMENSIONS ARE
IN INCHES AND
AFTER PLATING

TOLERANCES
(unless otherwise
specified)

.X ±.1
.XX ±.03
.XXX ±.010
ANGLES ±0.5°

MACH
SURF



DR 6-23-77
 CHK 7-25-77
 DSGN
 PROJ
 REL 7-25-77

APPROVED

APPROVED

DO NOT SCALE DRAWING

Parko

ELECTRONICS COMPANY INC., IRVINE, CALIF.

PARTS LIST AND TRACEABILITY RECORD

SENSING RELAY
OV-UN VOLTAGE & PHASE

CODE IDENT NO

13979

SIZE

A

PL 101535

REV

NC₁

SCALE ---

SHEET 1 OF 4

PL 101535
SH 1 of 4
NC₁
PARTS LIST - SENSING RELAY, OV-UN VOLTAGE & PHASE

PARTS LIST & TRACEABILITY RECORD

DATE _____

PARKO P/A 101535

CUSTOMER & P.O. NO.

[illegible]

PARTS LIST & TRACEABILITY RECORD

DATE

PARKO P/N 107500

CUSTOMER P/N

149728-1

SHOP ORDER NO.

CUSTOMER & P.O. NO.

QTY

S/N

THRU

REF. DES.	P/N	DESCRIPTION	QTY UNIT	QTY TOTAL	INSP	MANUFACTURER	PARKO P.O. NO.	LOT
R1	REL-R-300177 e-109L	Relay						
Q1, Q2	2N2222A	Transistor	2					
T1	PC-4410	Transformer	1			Microtran		
U1, U2	MC1558G	Dual Op Amp	2			Motorola (or equiv)		
R1	RN60	Resistor 75K	1					
R2	RN60	Resistor 22.7K	1					
R3, R4, R5	RN60	Resistor 4.4K	3					
R6, R7, R8	RN60	Resistor 100K	1					
R9	RN60	Resistor 12.1K	1					
R13	RN60	Resistor 5.62K	1					
R15	RN60	Resistor 8.25K	1					
R16	RN60	Resistor 2.15K	1					
R21	RN60	Resistor 4.22K	1					

PARTS LIST & TRACEABILITY RECORD

10

TABLE P/N 101530

CUSTOMER P/11

71.7.8-1

SHOP ORDER NO.

CUSTOMER & P.O. NO.

xiii

S/N

THE

REF. DES.	P/N	DESCRIPTION	QTY PER UNIT	TOTAL QTY	INSP	MANUFACTURER	PAKCO P.O. NO.	LOT
R23	RC07	Resistor 343K	1			(Liming 1 sec)		
R10	RC07	Resistor 47K	1					
R11	RC07	Resistor 100 Ohm	1					
R10	RC07	Resistor 820 Ohm	1					
R16, R24	RC07	Resistor 10K	2					
R17	RC07	Resistor 100K	1					
R18	RC07	Resistor 2.7K	1					
R22	RC07	Resistor 1.5M	1					
R25	RC07	Resistor 330K	1					
R19	3329-H-1- 502K	Potentiometer 5K	1			Bourns		
R20	3329-H-1- 102K	Potentiometer 1K	1			Bourns		

ELECTRONICS CO., INC.

1 - May be reworked 2 - Cannot be reworked 3 - Now shop practice
4 - Record change 5 - Parts made OK

REV	SHT	DESCRIPTION	DISP	DATE
A	1	ADDED NOV 16: TRIP TIME	3	1/2/87

10/525

1 - May be reworked 2 - Cannot be reworked 3 - Now shop practice
4 - Record change 5 - Parts made OK

REV	SHT	DESCRIPTION	DISP	DATE
NC ₁	-	R19 WAS 1.47K	3	6-78
NC ₂	-	C4 - WAS 2.2UF	3	9-87

DRAWING REVISION RECORD

1 - May be reworked 2 - Cannot be reworked 3 - Now shop practice
4 - Record change 5 - Parts made OK

REV	SHT	DESCRIPTION	DISP	DATE
101	-	RIP WAS 1.47K	3	6-74
102	-	CA - WAS 2.50K	3	6-87

DRAWING NO. 101232

SHT

TITLE

BY 101232

